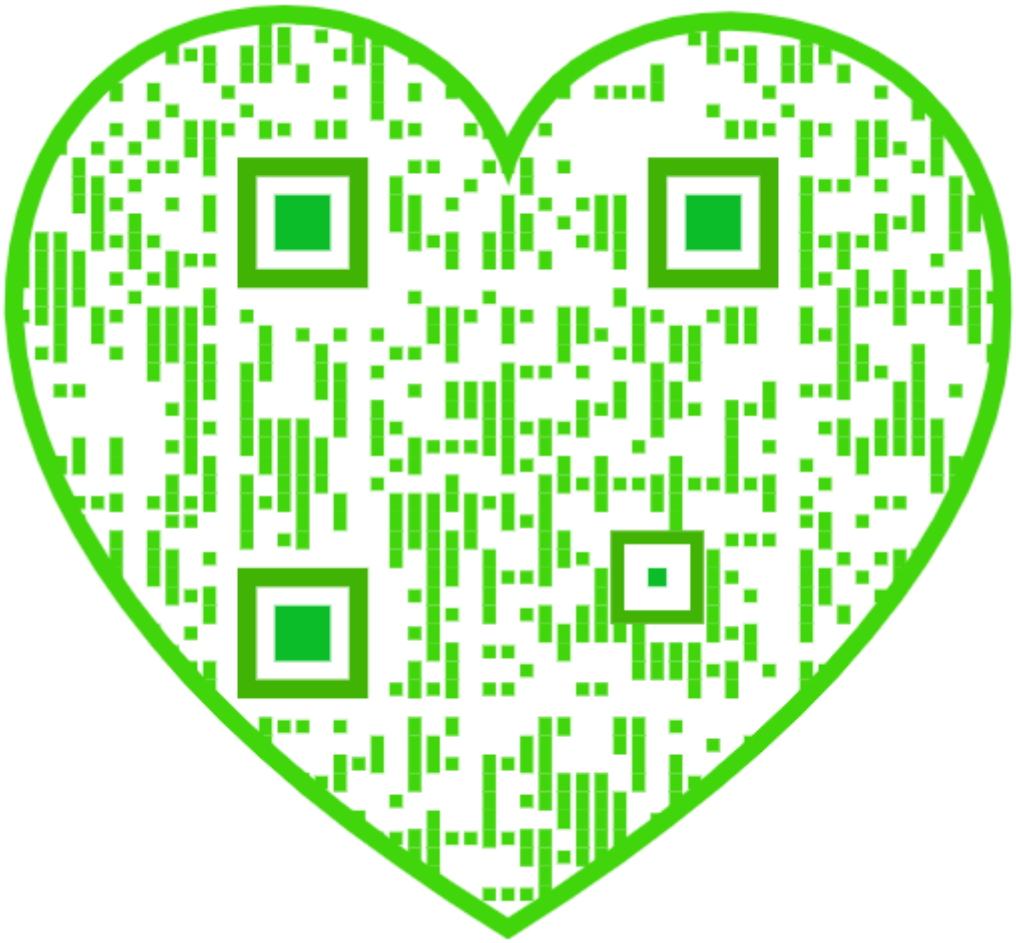
LIBRARY OF CONGRESS
00019777820



THE

PRACTICAL PAINTER

AND

INSTRUCTOR,

CONTAINING

THOROUGH INFORMATION IN THE ART OF MODERN PAINTING, VARNISHING, ETC.

BY

D. S. McDANNELL,

ROCK ISLAND, ILL.

LIBRARY OF CONGRESS
COPYRIGHT
No.
CITY OF WASHINGTON

CHICAGO:
CHURCH, GOODMAN AND DONNELLEY, PUBLISHERS.
1868.

TT305
.M13

Entered according to Act of Congress, in the year 1868,

By D. S. McDANNELL,

In the Clerk's Office of the District Court of the United States for the Northern District of Illinois.

G 13215

THE PRACTICAL PAINTER AND INSTRUCTOR.

PREFACE.

In bringing this work before the trade, it is designed to be a benefit to the Art of Practical Painting, and an assistant to those in the trade. The author is confident that this work has never been surpassed, in giving a thorough insight in the art of mixing and using colors. All he asks is a thorough examination of this work, feeling confident that it will be duly appreciated.

The art of painting is no new subject; but in practical painting there has not been that careful investigation there should have been. The decoration and beautifying of our homes is worthy of the careful consideration of the trade.

The author hopes to rectify a great many errors. The art of painting is most abused by those who have not served a regular apprenticeship, and, knowing but little of the business, contract work at ruinous prices, which, being but half done, causes great injury to the business. The object of the author is to give full and practical information in the art of mixing and using colors, and handling the various branches of the

business. Having followed the business twenty-three years, he is enabled, by close observation, to produce a better work than has ever been introduced to the trade. He treats the various parts of the business separately, giving thorough, practical information on every point, which has never been done in any work heretofore published.

To the new beginner, this work is of *immense* value, while to those more experienced, the tables, charts, scales, measurement, and ready reckoner, will prove invaluable assistants, saving much time and trouble.

Many of our best workmen have contributed to this work, and we feel confident it will meet the approbation of our fellow-painters. The work has not been filled with old discarded receipts, but is designed to give clear information to the new beginner, which he can comprehend, and to assist the older workmen in House, Sign, and Carriage painting; also in Gilding and Calcimining. The painter's measurement is not generally understood; therefore considerable pains have been taken in giving a correct scale of measurement in this book, which it is hoped will be universally adopted as a standard by contractors, thus doing away with the practice of taking work for a *mere trifle*, which many, through *ignorance*, now do. It is hoped this work will prove a help to all — to those having work done as well as the workmen. The right way is to get a fair recompense for your work, and do it well; for remember, what is worth doing *at all*, is worth doing *well*. The man that gets his work done at half-price, gets a very inferior job, and it would often be better not to have it done at all; therefore, go upon the principle of "live and let live."

There are hundreds of men following this business who know nothing of mixing colors suitable for the different kinds of work. This book will give them thorough instruction in this art.

And now, my friends and brother painters, all we ask of you is to give this work a fair and impartial trial, and the author will guarantee that you will be satisfied that the PRACTICAL PAINTER is a brick of no small dimensions. We shall endeavor to stand up for the rights of painters, for he is expected by the public to understand his business, and a great deal *more*. For instance, he is expected to make his paint dry, or his varnish have a splendid gloss. It matters not whether he made the japan or not. He is also expected to do a thousand and one things which are often impracticable, and is frequently blamed for things which are unavoidable, for paints are manufactured mostly from chemicals, and new materials are coming into use constantly. The druggist buying from different manufactories, the painter can not be expected to know an article before giving it a trial; and it is the same with all colors as well as japans and varnishes. If this was better understood by the public, painters could give better satisfaction.

Painters have a hard trade to follow, being subject to the effect of chemicals and poisonous nature of the paints. The chemicals work on different constitutions in various ways, with great injury; therefore the painter should be well paid for his work in all cases. In the northern and western countries he can do but little in the winter; and what he does he can make but little from. In the first place, he can make but

about half a day; and again the paint thickens up, and will not cover so much surface as in warm weather.

We think the public should give the poor painter his due, for we study to please, and to make pleasant that blessed place called home. My friends, what will make a mother, wife, or sister, more happy than a well painted room, grained, varnished and papered, or the walls well glossed? They will invariably exclaim, "how beautiful! how nice! and so easily kept clean!"

My friend and brother, there seems a great responsibility resting upon you; therefore I advise you to study this book well, and may it teach you to give good satisfaction, gain custom, and be useful to all; and may the knowledge you derive from it give you happiness in your business, and may that be as varied as the colors of the rainbow, of which we are but imitators.

THE AUTHOR.

INDEX.

PAGE.

Plain Painting - - - - - 21
Inside Painting - - - - 21
Painting Pine or Pitch Woods - - - 22
Painting Dead White, or Flatting - - 22
Plain Coloring - - - - - 23
Painting Brick Walls - - - - 24
Sanding on Brick - - - - - 24
Sanding on Wood Work - - - 25
Chinese Gloss White - - - - 25
French Porcelain Gloss White - - 26
Egg Shell Gloss - - - - - 27
China Gloss for Walls, White and Colors - 27
Instruction on Tracing - - - - 29
To Paint Venetian Blinds - - - 30
Priming and Glazing - - - - 31
Floor Painting - - - - 32

PAGE.

Painting Tin Roofs and Spouting - - 33
Grinding Colors - - - - 34
Remarks on Colors, Tints, Hues, and Shades - 34
Remarks showing that Paint will not Stand on Damp Wood - - - - 39
Painters' Measurement (Rules) - - - 40
Prices of Painting and Furnishing the Paints 44
Rules of Measuring, and Bill of Prices, on Brick 45
Prices on Colors of different shades - - 46
Prices for Glazing New Sash - - - 46
Prices for Glazing Old Sash - - - 47
How to Charge for Graining - - - 48
Prices for Glossing - - - - 48
Prices for Calcimining - - - - 49
Prices for Hanging Paper - - - 49
Prices for Sign Painting - - - - 49
Tube Color List (Artists' Colors), in Oil - 56
List of Moist Water Colors - - - 57
List of Painters' Colors in Oil or Dry - 59
List of Flocks - - - - - 59
List of Isinglass (or Frosting) - - 60
List of Smalts - - - - - 60
General Production of Colors, or the Graduations of Shades - - - - - 60
Ten Shades produced from Five Colors - - 64
Burning Colors - - - - 65

PAGE.

Graining Instruction - - - - 66
Mahogany - - - - - 66
Walnut - - - - - - 66
Maple - - - - - - 67
Ash - - - - - - 67
Rosewood - - - - - 67
Satin Wood - - - - - 67
Tulip Wood - - - - - 67
White Walnut - - - - - 69
Cedar - - - - - - 69
Hair or Ring Wood - - - - 69

To Mix Distemper (or Water) Graining - 70
To Varnish Water Color Graining - - 70
Tools Used in Distemper Graining - - 70

Graining in Oil—
Oak - - - - - - 72
Chestnut - - - - - 72
White Oak - - - - - 72
" " Medium - - - 72
Red Oak - - - - - 72
Polard Oak - - - - - 73

Instruction in Mixing Oil Graining Color - 74
Tools Used in Graining - - - 75
Glazing or Shading Oak - - - - 75

PAGE.

Varnishing Oak - - - - 76

Marbling—

Black Italian Gold Marble - - - 76
Black Egyptian Marble - - - 77
Sienna Marble - - - - - 77
Mountain Sienna Marble (or Pike's Peak Marble) - - - - 78
Italian White Marble - - - - 79
Dove Marble - - - - 79
Dark Gray Marble - - - - 80
Verda Antique - - - - 80
Jasper - - - - - - 80
Black and Gold Marble - - - 81
Black Veined Sienna Marble - - - 81
Norwegian Slate - - - - 81
Agate - - - - - - 82
Dove Gray Granite - - - 82
Green Lava - - - - - 83
Napoleon Agate - - - - 84
Red Porphyry - - - - - 84
Swedish Porphyry - - - - 85
Scotch Agate - - - - - 85
Black Granite - - - - 86
White Granite - - - - - 87
Gray Granite - - - - 87

PAGE.

Staining Rosewood - - - - 87
Rosewood Stain, very light - - - 88
Cherry Stain - - - - - 88
Mahogany Stain, on Walnut - - - 89
Common Mahogany Stain - - - 90
Common Walnut Stain - - - 90
A Beautiful Walnut Stain - - - 90
Asphaltum Rosewood Stain - - - 90
A Cheap Rosewood Stain - - - - 90
Coloring and Staining on Tin - - 91
Gold Lacquer for Tin - - - - 92
To Pearl or Crystallize Tin - - - 94
Frosting on Glass - - - - 94
Ornamenting Frosted Windows - - 95
Painting Calcine Window Shades - - 95
Chair Painting - - - - 97
To Paint Cottage Furniture - - - 99
Wagon Painting - - - - 100
Scenery Painting - - - - - 101
Fresco Painting - - - - 103
Calcimining - - - - - 104
Paper Hanging - - - - 106
To Varnish Wall Paper - - - - 107
Re-Painting Picture and Glass Frames - 108
To make Removable Ornaments and Letters on Glass - - - - - - 109
Sign Writing or Lettering - - - 109

PAGE.

For Transparent Signs or Letters - - 111
To take Impressions on Japan Tin - - 111
Impressions on Patent Leather - - - 113
For Smalting Signs - - - - 114
For Gilding Signs - - - - 114
Gold Signs on Canvas - - - - 115
English Gilding on Glass - - - - 116
Etching on Glass - - - - 119
Silk Banners - - - - - 120
Bronzing - - - - - 21
Painting Black Boards - - - - 121
Oriental or Crystal Painting - - - 122
A Fine Black Stenciling that will Not Spoil Stencil Plates - - - - - 124
A Transparent Blue for Polished Steel - 124
Lettering Show Cards - - - - 125
Lettering Posters - - - - 125
Lettering Door Plates - - - - 125
Painters' Cream - - - - 126
A Process to Gild or Paint when in a hurry - 126
Knot Killer - - - - - 127
Gilding with Gold Oil Size - - - 127
Gold Size for Glass Gilding - - - 128
To Prepare and Size Canvas or Silk - - 128
Bronzing Size - - - - - 128
Size for Paper Hanging - - - - 128
Size for Varnishing Wall Paper - - 129

PAGE.
Size for Lettering on Canvas - - - 128
Size for Scenery Painting - - - 129
To Prepare Canvas for Landscaping - - 129
Clarifying Linseed Oil - - - - 130
Copal Varnish - - - - - 130
Common Furniture Varnish - - - 130
A Varnish for Musical Instruments - - 131
Common Shellac Varnish - - - 131
A Black Varnish for Iron - - - 131
A Varnish for Fancy Articles - - 132
Japan Drier for Wagon Work - - - 133
Japan Drying Oil - - - - 133
A No. 1 Japan Drier - - - - 133
A Fine Benzole Japan Drier - - 134
A Drying Oil for Light Work - - - 134
The Little Gem Drier for Light Work - 135
The Queen City Japan Drier - - - 135
Polishing, Varnishing, etc. - - - 135
To Varnish by Scraping - - - - 137
A Reviving Polish - - - - 137
French Polish - - - - - 138
German Polish - - - - 138
A Patent Coach Varnish - - - - 139
Common Rough Stuffing - - - 139
Mack's Waterproof Priming for Brick - - 140
Rubber Waterproof Paint - - - 141
Stucco Paint, for Rough Work or Brick - 141

PAGE.

To Mix Color for Stenciling - - 142
Instructions for Making Colors - - - 144
The Chemical Composition of Colors - 151
Oils - - - - - - 154
Turpentine - - - - - 155
Benzole - - - - - - 155
Oil Reducer - - - - - 156
To Test Oil Paint - - - - - 158
Boiling or Preparing Paint Skins - - 158
Asphaltum - - - - - 159
Gum Shellac - - - - - 159
To Make Tracing Paper - - - - 159
To Stain Wood and Ivory - - - 160
Making Putty - - - - - 160
Strawing Colors - - - - 162
Number of Pounds to the Square Yard on Brick and Wood - - - - - 163
A Varnish to Prevent Glass from the Rays of the Sun - - - - - 163
Varnish for Maps, Drawings, etc. - - 164
A Gold Colored Copal Varnish - - 164
To Mix Paint for Grooves or Sinks - - 165
To Paint Inside of Sinks - - - 165
Gold Leaf - - - - - - 166
To Write on Metals - - - - 167
To Take Ink Spots out of Light Furniture - 168
To Clean Pictures - - - - 168

PAGE.

To Clean Paint, that is Cracked or Smalted, off Carriages, Signs or Glass - - - 169
Carriage Painting - - - - 170
A Rough Stuffing for Carriages - - - 177
To Rub Down a Carriage - - - 177
A Process for Ornamenting Carriages - - 180
Omnibus Ornamenting - - - 184
To Gild Buss Ornaments - - - 185
Brushes and Painters' Tools - - - 187
The Care of Brushes - - - - 191
Binding or Bridling Brushes - - 193
List of Lights per Box of Fifty feet - - 196
Price List of Glass per Box of Fifty feet - 201
Handling and Cutting Glass - - - 203
The Care of a Diamond - - - 204
Ready Reckoner for Taking Work - - 206
Scale of Windows—9's, Plain Finish, from 10 to 20 207
" " 9, Moulding Finish " " 208
" " 9, Pilaster Finish, with cap, " 208
" " 10, Plain Finish, 10 to 20 208
" " 10, Moulding Finish, " " 208
" " 10, Pilaster Finish, with cap, " 209
" " 11, Plain Finish, 10 to 20 209
" " 11, Moulding Finish, " " 209
" " 11, Pilaster Finish, with cap, " 209
" " 12, Plain Finish, 10 to 20 210
" " 12, Moulding Finish, " " 210

PAGE.

Scale of Windows, 12, Pilaster Finish, with cap, 10 to 20 - - - - - - 210
Scale of Doors and Frames - - - 212
Plain Finish - - - - - 212
Moulding Finish - - - - - 212
Pilaster Finish, with cap - - - 212
Scale of Business Fronts, with Flange - - 213
" " " Plain - - 213
Scales of Bases—6 in Base, 9 and 12 in Base - 213
Scale of Floors and Ceilings - - - 214
Scale of Picket Fence of different heights - 215
Scale of Window Blinds - - - 216
Scale of Porch Floors, Ceilings and Awnings - 217
Scale of Wainscoting, etc. - - - 218
Scale of Stairs - - - - - 221
Scale of Balustrade and Hand Rail - - 222
Cleanliness in Painting - - - - 224
Remarks to Beginners - - - 226
Painters' Colic and Weak Wrists - - 228
To the Apprentice or Young Painter - 230
Conclusion - - - - - 234

THE PRACTICAL PAINTER AND INSTRUCTOR.

The Practical Painter.

By D. S. McDANNELL.

Plain painting is the first thing that the apprentice is instructed in, and he should be very careful to observe closely all the instructions given in this work. First, all the white lead should be well strained, through a strainer made of perforated tin; and in mixing the colors, you should be very careful to mix it suitably for the work to which it is to be applied. For plain white painting, outside, the colors should be mixed with linseed oil, with a fair proportion of Japan drier. It requires three coats of paint to make a fair job, but much work is done with two coats only.

For inside painting, the paint should be mixed, for two coat work, with one-third oil

and two-thirds turpentine; where three coats are required, prime the work with one-half oil and one-half turpentine, and for the two next coats, mix the color one-fourth oil and three-fourths turpentine. When you wish to flat the work, mix the paint all turpentine, and dry it with patent drier; benzole has been used to a considerable extent, but at present painters have abandoned its use.

In painting pine or pitch woods, the knots and pitch places should all be thoroughly killed, or they will show, and spoil the work. (To make knot-killer, look under the head of Varnishes.) You should use but little oil in side-painting; for, by standing a short time, it turns yellow, and spoils the job. To paint a clear dead or flat white, first kill the knots, then give the work three coats of the best white lead, and the fourth coat with clear zinc mixed with turpentine, and a small quantity of patent drier. In making a neat job, too much care can not be taken in puttying up the work. The best putty for filling small holes is made of one-half common putty, and one-half white lead, well worked together. All work should be puttied after priming, and before the second coat is put on. The work should be thoroughly rubbed with sand-paper, cutting the surface evenly.

Remember that the best brands of lead are the cheapest, and always give the best satisfaction.

PLAIN COLORING.

In mixing plain colors for house-work, that have white lead in them, mix and strain first; then add the colors, little at a time, until the right shade is produced. For inside work, mix one-fourth, and sometimes one-half, oil, in colored paints, the other parts spirits turpentine, with drier. All colors are best ground; and it is especially necessary in inside work. It is also necessary that colors should harmonize; for example, when *light*-brown is used, the trimming should be *dark*-brown — and whatever the shade, use the same colors to produce the body and trimming colors. If this is observed, the colors will harmonize. Many houses are trimmed with white lead, which does very well; green and brown will not harmonize, and the same is true of various other colors. The work should be thoroughly dry between each coat; and the work is much improved by rubbing it with sand-paper. Paint will go much farther, if ground. Remember to use the drier, in all your colors; for, unless it is dry, a good job can not be made. All

work that is to be varnished, should be mixed with spirits turpentine; that is, to a dead or flat color, with a very small portion of oil. There is no deviation from this rule. You should not varnish over oil colors, if it can possibly be avoided; because it is liable to crack.

PAINTING BRICK WALLS.

First, give the work one coat of my brick-priming; if this can not be obtained, use oil-color; then give the work two or three coats of the color you desire, using raw or boiled linseed oil.

SANDING ON BRICK.

First, give the work one coat of patent brick-priming; then two coats of color, sanding the third. Or, to make a better job, give the work four coats, sanding the two last, making five coats in all; this makes a No. 1 job. The preference is given to the hand-sander, for throwing in the sand. You can mix any shade desirable, and, by using the white sand, it will partake of the color, with but little change of shade; this makes a most beautiful finish. For sanding dark colors, the common river sand will answer every purpose.

SANDING WOOD-WORK.

Give the work four coats of color, sanding the third and fourth, making in all five coats; for you can not make a good job short of four coats — although you can contract for three coats, sanding the third only; but it will not make a good finish.

In all cases, use boiled oil in sanding — especially in the coats which receive the sand; and remember that raw oil will not hold the sand, it being too thin — but oil when properly boiled, thickens, and consequently the sand adheres to the work. The best drier for sanding colors, is boiled with the oil, using litharge, red lead, and magnesia.

Sanding is a very permanent and durable mode of painting, the sand protecting the paint from the weather, and making a most desirable finish, when skillfully handled.

CHINESE GLOSS WHITE.

This is used for inside painting, it generally giving the best satisfaction; and, when well executed, it has a beautiful gloss finish.

First, to prepare the work, kill all the knots and pitch places — that is, in pine woods —

which is done by using shellac knot-killer; then mix the priming with one-half oil and one-half spirits of turpentine, with a strong portion of drier; if the pine is very pitchy, pour in about one-third knot-killer with the priming. Then give the three more coats of lead, mixed flat, with a good portion of patent drier. Let it dry hard; then sand-paper well, and give one coat of zinc, mixed flat. In order to get pure zinc, buy it dry, and grind it very fine. Then give the work one coat of zinc — or, if two coats of lead will cover well over the priming, give two coats of zinc. Next, give the work a coat of zinc, with one-third Demar varnish; and the last coat, or the varnish coat, use a small quantity of zinc in the varnish, enough to make it a milk-color. This, if followed minutely, will give a very fine gloss.

FRENCH PORCELAIN GLOSS WHITE.

Proceed as above, in priming. Putty the work evenly and well, mixing it with one-half common putty, and the other half white lead; this is called white lead putty. All defects should be filled very evenly, and when the priming is hard, use sand-paper thoroughly; then mix the paint flat or dead, and give the

work three coats of lead. Then apply the porcelain, giving the first coat with the clear porcelain, mixed with turpentine; the next coat porcelain, with one-third Demar varnish; and the last varnish coat, with a small portion of porcelain, enough to make it the color of milk.

This, properly handled, is the most beautiful of all gloss finishes, and has a clear porcelain gloss white finish.

EGG-SHELL GLOSS.

This is a very common finish, and is done by killing the knots and pitch, then giving two coats of lead, and the third with zinc. To finish, varnish with Demar, with a small portion of zinc in it.

CHINESE GLOSS, FOR WALLS.

In this, any tint can be given which is desirable; but it must be very delicately done. First, size the walls and ceiling, with a weak size of white glue—for, if too heavy, it is apt to peel. Then give the work two coats of color; then one coat of the same, with one-third Demar varnish; and in the last, or varnish coat, put in a small portion of the color. By using a small quantity of color in the varnish, streaks

are avoided. These colors are all mixed in turpentine, and the gloss made with Demar varnish. To dry this work, use patent drier; if this can not be obtained, use sugar of lead, dissolving it in soft water.

This is a most beautiful finish, and is coming into use in most of the cities of the Union; it giving the walls and ceilings a fine finish, which is easily kept clean, and can be washed at pleasure. It gives general satisfaction, and is very durable. The ceilings are mostly changed a different color. These colors are generally tinted very delicately, for the body of the work is generally very large; therefore the colors must be very light, for they will show deeper on walls than on wood-work. The shades mostly used are: pinks, buffs, delicate greens, cream-colors, and very light lilacs. Follow these instructions thoroughly, and you can not fail to succeed in your work; but neatness is required in all your work, and especial care to keep your colors clean, straining when required, both in common and in good work. A careless painter never can produce a neat or good job.

INSTRUCTION ON TRACING WINDOWS.

First, trace the windows on the outside. To mix tracing color for white on the outside, use all oil; in mixing the lead, make it quite heavy; and the best way, if there is time, is to trace the sash on one side at a time. For tracing inside work, use the color mixed with one-fourth oil and three-fourths spirits of turpentine. The best way to handle sash is to take it out, if possible, and place it on a box, about knee-high; then take the sash in the left hand, with the edge on the box, and lean it a little forward; draw the sash with a firm hand, being careful not to touch the glass. Various colors are used in tracing outside — red, made of American vermilion; another of Venetian red and red lead; and still another, bordering on wine-color, made of Indian red, with a small quantity of white lead; another color, bronze green, composed of chrome yellow, chrome green, and black. Some use a bronze green made of yellow ochre and black; but it is not brilliant enough for tracing. There is a fine brown bronze color, used for tracing, made of burnt umber, Venetian red, and a small quantity of chrome yellow. A tracing for mahogany is made by priming with white lead,

charged with red lead, and traced with burnt sienna in boiled oil; and a cherry color is made by mixing Venetian red and chrome yellow with a very small quantity of white lead.

TO PAINT VENETIAN BLINDS.

Paris green has always been the standard color for blinds, but workmen dislike to use it, because of its poisonous effect upon the system; and, at the same time, it is a very hard color to use. It should be ground fine, in boiled oil that has a sufficient quantity of drier boiled in it. First, the blinds should be primed with lead color, mixed so as to dry hard; sand-paper well. The blinds should have three coats of Paris green, to make a finished job, mixed invariably with boiled oil. Patent drier is good to use with the color, for Paris green is very hard to make dry, and also to keep from running; it also requires great care in spreading it evenly. Sometimes but two coats are given over the priming. This green is quite transparent; it stands well, and holds its color in the weather. In painting blinds, some put a little water on the top of the color, to prevent the brush from snarling up; which is a good idea.

The next best green in use is the Hampden, or permanent green. There are various brands and different shades of this green; it covers well, and works very freely; it is used a great deal in painting blinds, it being pliable and very soft. Give the work one coat of lead color, sand-paper well, and putty up all defects; then give the work two coats of green, mixed in boiled linseed oil, drier, etc. The green should be ground very fine. It gives good satisfaction, is quite durable, and is generally used; it being quite easy to make a nice job with it.

There are other colors used in painting blinds, but there is nothing equal to green for this purpose. Buffs do very well for those that admire light colors. Some use a flesh-color; others, vermilion — but this is only used on steamboats, or something of that kind.

PRIMING AND GLAZING SASH.

In priming sash, be careful to do the work thoroughly — especially where the putty is run on; some leave that part of the sash, thinking that the putty will cover it. When the sash is not well primed, the oil will soak off the putty in the wood; and, by standing in the weather,

will crack, and fall out. It is a neat thing to be a good glazier, and can only be learned by practice; but can soon be acquired by observation and practice.

FLOOR PAINTING.

There is a great mistake made in mixing floor-colors. Many, after finishing up their house-work, take the colors that are left, and paint the floors; which is entirely wrong. Others will persist in using boiled oil for floors, claiming that it dries harder than raw oil; but the reverse is the case. It will have the appearance of drying faster, but it will not be hard, by any means; it can not be used for a long time, as it will show tracks, and catch a great deal of lint and dirt, thus spoiling the work, and making it almost impossible to do a good job over it. The best way to mix floor-color is to grind, in raw linseed oil, 5 pounds of yellow ochre, 2½ pounds of litharge, a small quantity of Venetian red, and 2½ pounds of white lead; grind fine, and add a strong portion of Japan drier, so the work will dry hard. Give three coats, giving it time to dry hard between each coat. If the floor is to be varnished, the paint should be mixed with one-

half oil and one-half turpentine, with plenty of Japan drier; give three coats, and one coat of the best copal varnish. If these instructions are followed, the paint will wear well, and give good satisfaction.

There are other floor-colors that can be used by grinding litharge in them. Red lead and umber are good colors for floor-painting; both are good colors to dry hard. I have often been called upon to paint floors over, that have been painted badly; and a sorry job I found it. Therefore, remember, what is worth doing at all, is worth doing right.

PAINTING TIN ROOFS.

The best, and, in fact, the only correct way, to paint tin roofs, is to mix the paint of metallic, fire-proof or mineral paint; and next to these is Venetian red; but in no case use white lead — and especially next to the tin — for it has chemicals in it that corrode the tin, and soon eat or rust the roof, or any other tin-work painted with it; but the mineral and metallic paints, when ground in oil, last well.

GRINDING COLORS.

It is positively necessary to grind all colors that are used. In the first place, if colors are ground fine, they will go farther, and are not so liable to run, after being put on; for the oil and color will mix much better, and the paint is more durable. I speak of these advantages in grinding colors, because most painters hold that it is unnecessary to grind most colors; but the trade can judge for themselves.

OF COLORS, TINTS, HUES AND SHADES.

To understand these terms, a short explanation will not be inappropriate.

Color is an elementary phenomenon in nature, adapted to the sense of vision; a phenomenon which, like all others, exhibits itself by separation and contrast, by commixture and union, by augmentation and neutralization, by communication and dissolution. Under these general terms, its nature may be at least comprehended. Although there are but few distinct colors, there is an infinite variety of tints, hues, and shades.

The word *tint* is applied to colors, in relation to their lightness — or, in other words,

their graduations from the most perfect or intense state, to that in which the color is lost, and white is obtained.

By *shade* is meant the relation of colors to darkness; or, their graduation from the most perfect state to that in which they approach nearly to black.

Hue is the aspect of any color, not being a primary, as changed by an alteration, in the proportion of its compounds. A primary color — that is, either red, yellow, or blue — may vary in tint or shade; but it can not in hue, for the addition of any other color will entirely change, and give it another name. The colors formed by the union of the primaries may be changed, almost without end, by mixtures in various proportions; so that their hues are innumerable. Orange, for example, is composed of yellow and red, and according to the predominance of one of these over the other, so will be its hue; and green may, in the same manner, vary from that which is most yellow, to that which is most blue. The more compound the color in its formation, the greater will be its hues.

Although a great variety of colors are made and used by painters, they may all be formed,

and of any hue, tint, or shade, from the three simple colors — red, yellow and blue.

To illustrate the principles of harmony, as exhibited by colors, both in succession and in composition, for instance, take the three primitive colors — red, yellow and blue. If placed in contact, it would not be satisfactory to the eye, but rather form a combination somewhat unpleasant. These three colors, however, are found in the prismatic spectrum, which is exhibited by nature, on a large scale, in the rainbow; but they are not there in contact, for they are separated by the secondary colors produced by the intermixture of the primaries — and these secondary colors melodize the various characters of the primaries, and cause the entire combination of colors to be harmonious. The secondaries are, in this instance, the melodizing colors; and it will be instantly admitted that no combination, in nature or art, is more delightful to the eye, than that produced in the rainbow. This, then, is the harmony of successions; and it essentially consists in so blending the two or more colors, not in themselves harmonious, that the eye rests upon them with perfect satisfaction and pleasure. In the instance we have selected, the yellow is melodized by the green on one side, and the

orange on the other; the blue, by the green and the purple; and the red, by the purple and the orange.

The harmonizing of colors is worthy of more attention than a mere matter of curiosity. From an investigation of the phenomena of colors, it has been discovered that when the eye is strongly impressed with a primitive ray, it has the power of producing the harmonizing — or, as philosophers term it, the accidental — colors. This may be easily proven by experiment. If a red spot be painted on a white ground, and the eye be intently fixed upon it, a border of green color, after a short time, will appear to surround it; if the spot be blue, the border will be orange; and if yellow, it will be surrounded by purple. In each, the accidental color is presented, and all of the three homogeneous rays; two of them, in composition, are perceived. The experiment may also be made by turning the eye to a sheet of white paper, after it has been intensely fixed on the colored spot; for the accidental color, sometimes called the ocular spectrum, will then appear.

Another curious experiment may be here mentioned, as evidently resulting from the peculiar action of the eye, in producing ocular

spectra. Take any object with a sharp outline, and suspend it before a screen of white paper, so that, by placing two candles in a convenient situation, two images of the same object may be formed, with nearly the same degree of strength. Then place before one of the candles a piece of green glass, of a deep hue, and a most curious phenomenon will be observed; for one of the images will become red, and the other will appear green, which is the complementary color.

The subject of the harmony of colors is of the utmost importance to the practical painter, and, therefore, should not be lightly treated. A complete harmony of colors can not be obtained, without regard to the tints. A slight reflection will convince the reader that, however well two colors may be chosen as to hue, they can not be in harmony, if their tints be disregarded.

I would say here, that the choice of colors greatly depends on the mental characteristics of communities. The French, and other nations, distinguished by a lively and energetic spirit, prefer intense and active colors. The English and German, who are sedate and thoughtful, select those which are more quiet and retiring; while the Spaniards and Italians,

who are anxious to maintain a becoming gravity and dignity, and yet possess much energy of mind, and great elasticity of spirit, employ bright colors on the passive side. Taking all of these views, the painter should study carefully the different colors, hues, and shades, so as to accomplish his work in a harmonious manner, and thus please his customers.

REMARKS, SHOWING THAT PAINT WILL NOT STAND ON DAMP WORK.

Perhaps it is well to remark here, that no surface is in a fit state to receive paint, which is not perfectly dry. This is a fact universally acknowledged by all painters, and yet, in practice, strangely neglected. It is not an uncommon thing to see painting, in good rooms, blistered by the injudicious application of color before they are perfectly dry; and this so frequently happens, that it is almost impossible to avoid the conclusion that, in many instances, the painter has been induced to commence his work, merely for the sake of obtaining an engagement, and making a profit, without regard to the ultimate injury inflicted upon his employer. It is quite easy to tell whether the paint is perfectly dry; but it is not always pos-

sible to determine whether the wood-work has been sufficiently seasoned. The effect will, in this case, be damaging to the painting. The surface of the material, whether it be wood or plaster, being covered with paint, the moisture which is contained within it is prevented from escaping — for it is impervious; it will, therefore, after a short time, force up the paint from the surface it covers, blisters will be formed, and the paint will peel off, to the great permanent detriment of the work. This will be especially the case when it is exposed to the direct rays of the sun; but, under all circumstances, the painter must be cautious about commencing his work upon a substance which contains any degree of moisture. Instances of the effect produced by a disregard of this precaution, might easily be adduced; but to any person who has paid any attention to the subject, this is unnecessary.

RULES FOR MEASURING PAINTERS' WORK, AND BILL OF PRICES FOR PAINTING AND GLAZING.

(1.) Plain cornices and boxing of 2 feet 9 inches girth, measure 3 feet.

(2.) Cornices, block or dentile, that girt 1 foot, measure three feet girth.

(3.) In all cases where there is block or dentile work, the measurement obtained by drawing the tape straight across should be multiplied by three.

(4.) Cornices, block and dentile, otherwise ornamented, if 2 feet girth or upwards, to girth from 6 to 12 feet.

(5.) Dormant cornices to measure the same as above, according to the ornaments. Cornices on porticoes and frontispieces the same.

(6.) Barge boards, water spouts, and gutters, to girth 3 feet.

(7.) Paling and railed gates, measure and a half; that is, three heights, besides girthing the rails and posts of the railing, if done with one color, but if trimmed with another color, one foot extra.

(8.) All stone facias, window and door arches, sills, $2\frac{1}{4}$ feet girth.

(9.) Window and door frames, in and outside, that do not girth 9 inches, to measure 1 foot; and where they measure 1 foot and 7 or 8 inches, to be called 2 feet girth.

(10.) Venetian shutters, double the measure of plain work.

(11.) Square picket fence, if 3 feet high, should be called 9 feet high; that is, one yard to the foot.

(12.) Window bars shall be measured square; window sash the same, if done with one color, but if done with two they shall be double measure.

(13.) Corner strips on frame houses, if painted with a different color from the weather-boards, to girth one foot.

(14.) Windows that have four lights in them can be measured by drawing the tape straight across, both in length and breadth.

(15.) Rough weather-boarding and old roofs, double measure.

(16.) Oiling and penciling on brick work shall be measured square; and on dead walls, from one-fifth to one-third added to the measurement.

(17.) Plain cornices, including chimney, door and window caps, 1 foot 6 inches girth; cornices ornamented, 3 feet girth; if richly ornamented, from 4 feet 6 inches to 9 feet girth.

(18.) Balusters (either in or outside) to be measured three sides; if the hand rail is capped with a different color, one foot more to be added.

(19.) Corner strips, corner beads, and single architraves, that do not girth a foot, to be

allowed one foot, and double architraves from 1 to 2 feet girth.

(20.) Pilasters shall be allowed from 1 to 6 feet girth.

(21.) String boards to girth from 2 to 6 feet.

(22.) Wash boards, on staircases, to girth 1 foot 6 inches; if capped with another color, 6 inches to be added.

(23.) Base and surbase, plain, if done with one color, to girth 1 foot; if two colors, 1 foot 6 inches each.

(24.) Base and surbase, ornamented, 2 feet; if capped, 2 feet 6 inches each.

(25.) Panels to be allowed 2 inches in height and breadth for each panel; but if the panels are done with one color and stiles of another, measure and a half; if the mouldings are done with another color, double measure.

(26.) Edges of plain shelves, 3 inches girth; beaded or otherwise, from 3 to 6 inches girth.

(27.) Painting on plastering shall be measured square, and the openings deducted; making suitable allowance for cutting edges, and from one-fifth to one-third added to the measurement.

(28.) Painting frame houses that are boarded up and down and cleated, also all work that is cleated, should be counted, and 2 inches to the cleat be added to the solid measurement.

(29.) All picked out work to be valued according to trouble.

(30.) All work not herein expressed, to be measured according to the judgment of the measurer.

PRICES OF PAINTING AND FURNISHING THE PAINTS.

Common colors, such as White, Yellow, Slate, Straw, or Cream—

For one coat (per square yard).....12½ cts.
" two coats " .....25 "
" three " " .....37½ "
" four " " .....50 "

For one coat Brown or Chocolate color.....10 "
" two coats " " " .....20 "
" three " " " " .....30 "
" four " " " " .....40 "

For one coat, Dark Blue or Chrome Yellow..14 "
" two coats " " " " ..28 "
" three " " " " " ..40 "
" four " " " " " ..52 "

For one coat of Dark Green color .....15 "
" two coats " " " .....30 "
" three " " " " .....42 "
" four " " " " .....55 "

For two coats of Paint and one of Sand.....35 "
" three " " two " .....50 "
" four " " " " .....65 "

Fancy colors add in proportion to the cost of the colors.

For Oiling and Penciling Brick.....23 cts.

Where the painter cleans and putties new work, he shall be allowed 5 per cent.; when he only putties, he shall receive 3 per cent.

RULES FOR MEASURING, AND BILL OF PRICES FOR PAINTING ON BRICK, ETC.

All painting on brick shall be measured square, and the openings deducted; that is, the actual opening which the sash or door occupies, allowing the thickness of the door or window frame to make up the reveals. If the frames or reveals are of an uncommon thickness or depth, a proper allowance shall be made by the measurer. If the stone or brick caps or arches are or are not of the same color as the wall, there shall be no change from the above rule, but if they are painted with a different color, they shall be called from one to two feet girth, the price to be according to color and number of coats.

If the stone sills are done with a different or with the same color as the walls, they shall be called from one to two feet girth, according to the color and number of coats. Stone or brick facias, and water tables, if done with the same color as the wall, shall be measured in with it, but if painted with a different color, they shall be measured the same as the stone sills, etc.

N.B.—No reference is to be had to the above rules for measuring stone facias, etc., where the walls are not painted.

PRICES.

Common colors, such as White, Yellow, Straw, Slate, Pearl or Cream—

For one coat (per square yard) ...from 12½ to 15 cts.
" two coats, " " 23 to 25 "
" three " " " 33 to 36 "

Brown or Chocolate color—

For one coat (per yard).....from 10 to 12½ cts.
" two coats " " 20 to 25 "
" three " " " 30 to 35 "

Dark Green, Blue, or Chrome Yellow—

For one coat (per square yard)... from 15 to 20 cts.
" two coats " " 30 to 35 "
" three " " " 40 to 45 "

When the employer furnishes material, the price thereof shall be deducted from the bill.

PRICES OF GLAZING.

Prices for glazing new sash and furnishing putty—

8 by 10	(per light)	4 cts.
9 or 10 by 12	"	6¼ "
10 by 14 or 15	"	8 "
11 by 15	"	9 "
11 by 16	"	10 "
12 by 16 or 18	"	12½ "
14 by 20	"	16 "
16 by 22	"	20 "

When the glazier furnishes the glass, the usual retail price shall be charged; if there is a percentage taken from the bill, the charge for the glass shall not be subject to it.

PRICES FOR GLAZING OLD SASH

8 by 10 (per light)	15	cts.
9 or 10 by 12 "	20	"
10 by 14 or 16 "	25	"
11 by 15 "	31¼	"
11 by 16 "	35	"
12 by 16 or 18 "	50	"
14 by 20 "	100	"
16 by 22 "	135	"
16 by 24 "	150	"
16 by 28 "	200	"

All larger lights charged in proportion to the size and the cost of the glass; double thickness would average one-fourth higher. When the glass is furnished, the usual retail price shall be deducted from the above rates; if a percentage is taken off, the charge for the glass shall not be subject to it. When the glazier beds the glass, one-half shall be added to the bill.

PRICES OF PAINTING WINDOW BLINDS, THREE COATS.

For 8 by 10 window	$1 50
" 10 by 12 "	2 00
" 10 by 16 "	2 25
" 12 by 18 "	2 77

Larger sizes in proportion.

Price of painting cloth window shades where the cloth is furnished, 50 cents per square yard; where the painter furnishes, the price of the

cloth is charged extra; and where borders are run, the charges must be according to the amount of work put on.

HOW TO CHARGE FOR GRAINING.

Charge according to the following rule, no matter what the number of coats:

For priming coat (per square yard)				.....	12½ cts.
" second "	"	"	.....	12½	"
" third "	"	"	.....	12½	"
" graining "	"	"	.....	12½	"
" shading or glossing coat		"	.....	12½	"
" varnishing		"	.....	15	"
" "		"	.....	15	"

The above are the prices for each separate coat. Graining is generally turned off with two coats of color, then grained, shaded, and varnished, making five coats, which, you see by the above prices, will amount to 65 cents per square yard; but the charge must be made according to the number of coats.

PRICES OF GLOSSING.

For priming (per yard)				.....	12½ cts.
" second coat "				.....	12½ "
" third " "				.....	12½ "
" varnish color zinc (per yard)				.....	15 "
" varnish creamed		"		.....	15 "
" varnish clear coat		"		.....	15 "

Egg-shell gloss is 4 coats.
Common " 5 "
Extra " 6 "

PRICES FOR CALCIMINING

For one coat (per square) ..... 80 cts.
" two coats " .....125 "

Where ceilings and walls have to be washed, 30 cents per square should be added to the above prices.

PRICES FOR HANGING WALL PAPER.

For hanging common paper (per roll).....25 cts.
" " satin " " .....30 "
" " bronze " " .....40 "
" " gilt " " .....50 "

Where walls should be sized, charge 5 cents extra per roll; and where the ceilings should be scraped, charge for the time it takes to do the work.

PRICES FOR SIGN PAINTING.

Rates for gilt signs on boards:

1 inch	(per letter)	.. 6 cts.		13 inches	(per letter)	$1 00	
2 "	"	..10 "		14 "	"	1 10	
3 "	"	..15 "		15 "	"	1 20	
4 "	"	..20 "		16 "	"	1 30	
5 "	"	..25 "		17 "	"	1 40	
6 "	"	..30 "		18 "	"	1 50	
7 "	"	..35 "		19 "	"	1 60	
8 "	"	..45 "		20 "	"	1 70	
9 "	"	..55 "		21 "	"	1 80	
10 "	"	..65 "		22 "	"	1 90	
11 "	"	..75 "		23 "	"	2 00	
12 "	"	..85 "		24 "	"	2 10	

If condensed letters, deduct one-third from the above rates; if shaded with one color, add one-eighth to the above rates.

If shaded with two colors, add ¼ to the above rates.
" " three " " ⅜ " " "
" " four " " ½ " " "

If smalted or sanded, add the cost of the smalt or sand. The above rates are exclusive of the cost of the boards.

To signs on bare stone work, add ¼
" " " painted stone work or wood, add ⅛

UPRIGHT GILT SIGNS ON BOARDS.

From and under 1 foot	to 18 inches (per line)	62½	cts.
" 18 inches	to 2 feet	" 75	"
" 2 feet	to 2½ "	" 85½	"
" 2½ feet	to 3 "	" 100	"
" 3 feet	to 3½ "	" 112½	"
" 3½ feet	to 4 "	" 125	"

The above rates are exclusive of the cost of boards.

If on bare stone columns, add ½.
If on wooden or painted stone columns, add ¼.
If shaded, observe the rule for it.

RATES FOR COMMON OR PAINTED SIGNS.

Under 4 feet	$0 75	From 20 to 25 feet	$5 00
From 4 to 6 feet	1 00	" 25 to 30 "	6 50
" 6 to 10 "	2 00	" 30 to 35 "	8 00
" 10 to 15 "	3 00	" 35 to 40 "	9 00
" 15 to 20 "	4 00		

If more than one line on the same sign, for each line after the first, half price.

If shaded 1 color, add ¼	If shaded 3 colors, add ½
" " 2 colors, " ⅜	" " 4 " " ⅝

UPRIGHT SIGNS ON BOARDS, PAINTED LETTERS.

From and under 1 foot to 18 inches (per line)	..20 cts.
" 18 inches to 2 feet	" ..25 "
" 2 feet to 2½ feet	" ..30 "
" 2½ feet to 3 "	" ..35 "
" 3 feet to 3½ "	" ..40 "
" 3½ feet to 4 "	" ..45 "

If shaded, observe the rule for it.

PAINTED SIGNS ON STONE OR WOODEN FRONTS.

Signs (painted letters) on wooden or stone fronts, immediately above the doors, to be charged the same as painted signs on boards up to 25 feet.

From 25 to 30 feet	$6 00
" 30 to 35 "	7 00
" 35 to 40 "	8 00

Signs on brick walls, or weather-boarding, same rates as on boards, the lettering and ground work to be charged for in addition by the square yard, at the rates mentioned in the

list of prices, but no percentage is to be deducted.

PAINTED SIGNS ON STONE OR WOODEN COLUMNS.

Under 2 feet wide (first line)	$0 75
From 2 to 3 feet "	1 00
" 3 to 4 " "	1 25

Each succeeding line, half price.

If shaded, observe the rule for it.

RATES FOR JAPAN TIN SIGNS, GILT.

10 by 14 (first line)	$1 00
Each succeeding line	50
12½ by 17 (first line)	1 25
Each succeeding line	75
14 by 20 (first line)	1 50
Each succeeding line	1 00
Boarding signs	50 to 75 cts.

Any intermediate size to be charged the same as that size immediately above it. For shading, observe the same rules as for large gilt signs. When both sides are lettered, deduct one-half the price of the tin from the above rates.

Japan tin signs, painted letters, one-half of the above rates.

Common or painted tin signs, one-third of the above rates.

SINGLE GILT NUMBERS OR LETTERS.

From	1	inch	to 2	inches	(each)	8 cts.
"	2	"	3	"	"	12½ "
"	3	"	4	"	"	16 "
"	4	"	5	"	"	20 "
"	5	"	6	"	"	25 "
"	6	"	8	"	"	37½ "
"	8	"	10	"	"	50 "
"	10	"	12	"	"	62½ "
"	12	"	14	"	"	75 "

Single *painted* numbers or letters, one third of the foregoing rates.

PAINTED LABELS ON JARS, BOTTLES, OR DRAWERS.

One line, plain	12½ cts.
Two lines, "	18¾ "
Fancy scroll	25 "

For gilt labels, add the cost of the leaf, and two cents each for laying it.

SPOUT HEADS, GILT.

Small size (each)	$0 50	Round, large size	$1 25
Square " "	0 75	Largest "	1 50
Round, common size	1 00	" extra gilding	1 75

SPOUT HEADS, NOT GILT.

Small size (each)	25 cts.
Middle " "	50 "
Large " "	75 "

If smalted, add the cost of the smalts and two cents extra.

CANNISTERS, PLAIN PAINTED.

Round, common size.....37½ cts.
Square, " " .....37½ "
" large " .....50 to 75 "

GILT.

Round, common size.....50 cts.
Square " " .....50 "
" large " .....75 "
Largest size, from .....$1 00 to $2 00

The above is the Pittsburgh bill of prices for sign work. In the west, painters are in the habit of charging for signs by the letter, with the cost of the board and cost of painting; on signs averaging 12 to 16 feet, it is worth from 25 to 30 cents per coat.

PRICES OF PLAIN SIGNS.

From 2 inches to 4 inches (per letter) ..... 5 cts.
" 4 " to 6 " " .....10 "
" 6 " to 10 " " .....15 "
" 10 " to 18 " " .....25 "

PRICES OF SHADED SIGNS.

From 2 inches to 4 inches (per letter)..... 7 cts.
" 4 " to 6 " " .....12½ "
" 6 " to 10 " " .....20 "
" 10 " to 18 " " ...30 to 35 "
Extra fancy signs " ...40 to 50 "

For smalted signs, add the price of the

smalt, and five cents for cutting in and smalting.

Poster signs (per letter).....2½ to 5 cts
Show-window cards (apiece).....from 50 cts. to $1 00

PRICES FOR LETTERING ON GLASS.

Painted letters, plain (per letter)–

From 2 inches to 4 inches .....10 cts.
" 4 " to 6 " .....12½ "
" 6 " to 10 " .....20 "

Painted letters, shaded (per letter)—

From 2 inches to 4 inches .....12½ cts.
" 4 " to 6 " .....15 "
" 6 " to 10 " .....25 "

Fancy or ornamental, from 6 to 10 inches, 30 to 35 cts.

PRICES OF GILT LETTERS ON GLASS.

From 2 to 4 inches (per letter).....40 cts.
" 4 to 6 " " .....50 "
" 6 to 10 " " ...75 cts. to $1 00

For fancy ornamented, charge extra one third.

PRICES FOR PAINTING BARBER POLES.

Small door poles, from.....$1 75 to $2 00
Large poles, 15 feet in length..... 3 00 to 5 00
Small fancy..... 2 50 to 3 50
Large " ..... 6 00 to 9 00

ARTISTS' COLORS.

OIL COLORS IN PATENT COLLAPSIBLE TUBES.

Antwerp blue,
Asphaltum,
Bistre,
Bitumen,
Blue black,
Black lead,
Bone brown,
Brown ochre,
Brown pink,
Brown red,
Burnt umber,
Burnt Roman ochre,
Burnt sienna,
Burnt Veronese green,
Caledonian brown,
Cappah brown,
Cassel earth,
Chinese blue,
Chrome yellow,
—— deep,
—— orange,
—— green, 1, 2 and 3,
Copal Megilph,
Cologne earth,
Cork black,
Cremnitz white,
Crimson lake,
Emerald green,
Flake white,
Gamboge,
Indian brown,
Indian lake
Indian red,
Indigo,
Italian ochre,
Italian pink,
Italian red,
Ivory black
King's yellow,
Lamp black,
Light red,
Lima yellow,
Meglip,
Mummy,
Naples yellow (light),
—— —— (deep),
Neutral tint,
New blue,
Nottingham white,
Olive lake,
Orpiment,
Oxford ochre,
Payne's grey,
Patent yellow,
Permanent white,
Permanent blue,
Prussian blue,
Persian red,
Prussian brown,
Purple lake,
Pyne's Meglip,
Raw sienna,
Raw umber,
Roman ochre,
Scarlet lake,
Sugar of lead,
Terre verte,
Terre rose,
Transparent golden ochre,
Vandyke brown,
Venetian red,
Verdigris,
Verona brown,
Yellow lake,
Yellow ochre,
Zinc white,

Burnt lake,
Cerulean blue,
Chinese vermillion,
French vermillion,
Vermillion,
Brown madder,
Citron yellow,
Cobalt,
Extract of vermillion,
French ultra marine,
French Veronese green,
Indian yellow,
Maddar lake,
Malachite green,
Marr brown,
—— red,
—— violet,
—— yellow,
Mineral grey,
Oxide of chromium,
Ditto, transparent,
Pink maddar,
Rose maddar,
Ruben's maddar,
Scarlet vermillion,
Strontian yellow.

Burnt carmine,
Carmine yellow,
Carmine, No. 2,
Extra malachite green,
Factitious ultra marine
Maddar carmine,
Lemon yellow,
Mars carmine,
Orange vermillion,
Viridian,
Violet carmine.

Aureolin,
Carmine,
Purple maddar,
Ultra marine ash.
Extra maddar carmine (bright),
Ditto ditto (deep).

CAKE AND MOIST WATER-COLORS.

Antwerp blue,
Bistre,
Blue black,
British ink,
Brown ochre,
Brown pink,
Bronze,
Burnt Roman ochre,
Burnt sienna,
Burnt umber,
Chrome yellow,
Cologne earth,
Deep chrome,
Dragons blood,
Emerald green,
Flake white,
Gamboge,
Hooker's green, No. 1,
Hooker's green, No. 2,
Indigo,
Indian red,
Italian pink,
Ivory black,
King's yellow,
Lamp black,
Light red,
Naples yellow,
Neutral tint,

New blue,
Olive green,
Orange chrome,
Orpiment,
Payne's grey,
Prussian blue,
Prussian green,
Raw sienna,
Raw umber,
Red lead,
Red ochre,
Roman ochre,
Sap green,
Terre verte,
Vandyke brown,
Venetian red,
Verditer,
Vermillion,
Yellow lake,
Yellow ochre,
Black lead,
Brown maddar,
Chalon's brown,
Chinese white,
Constant white,
Crimson lake,
Indian yellow,
Mars yellow,
Neutral orange,
Purple lake,
Roman sepia,

Reuben's maddar,
Scarlet vermillion,
Sepia,
Warm sepia.

Cobalt blue,
Orange vermillion,
Violet carmine.

Aureolin,
French blue (or French ultra marine),
Green oxide of chromium,
Indian purple,
Intense blue,
Lemon yellow,
Pink maddar,
Rose maddar.

Burnt carmine,
Cadmium yellow,
Carmine,
Gallstone,
Maddar carmine,
Mars orange,
Pure scarlet,
Purple maddar,
Smalt,
Ultra marine ash.

Genuine ultra marine.

Whole cakes each, half cakes each, one-fourth cakes each, moist pans or tubes each.

LIST OF PAINTERS' COLORS IN OIL OR DRY.

Whites.

White lead in oil,
Zinc,
Dry zinc,
Dry lead,
Flake white,
Paris white,
Spanish whitening,
American whitening.

Greens.

Paris green,
Chrome green,
Hibernia green,
Verdigris green,
Pocora green,
Hampden green,
Permanent green.

Yellows.

Chrome yellow,
Gamboge,
French ochre,
Stone ochre,
Yellow ochre,
Poco ochre,
Raw sienna,
Litharge.

Browns.

Vandyke brown,
Burnt umber,
Raw umber,
Spanish brown,
Pocora metallic browns,
Ohio fireproof brown,
Wisconsin fireproof brown

Reds.

Chinese vermillion,
American vermillion,
—— vermillion,
English vermillion,
Red lead,
Light red,
Venetian red,
Scarlet red,
Indian red,
Burnt umber.

Lakes.

Scarlet lake,
Drop lake,
Rose pink.

Blues.

Prussian blue,
Ultra marine blue,
Permanent blue,
Indigo blue.

Flocks.

Black flock,
Red scarlet flock,
Light red flock,
Green flock,
Light green flock,
Ultra marine flock,
Prussian blue flock,
Brown flock,
Yellow flock,
Purple flock.

BLACKS.

Drop black,
Ivory black,
Blue black,
Asphaltum black,
Germantown black,
Lampblack black,
Common black lead.

FROSTINGS.

White frosting,
Blue frosting,
Green frosting,
Parisian isinglass

SMALTS.

Blue smalts or cobalt,
Light and dark smalt,
Brown smalt,
Black smalt,
Brown smalt,
Red smalt,
Gray smalt.

GENERAL PRODUCTION OF COLORS.

MIXTURES FOR PRODUCING COLORS.

The following colors are produced by mixing with white lead; the different shades are the result of the addition of coloring pigments, in quantities according to fancy. The following coloring matter should be ground very fine, to produce clear, delicate shades, and the utmost cleanliness in handling and grinding the colors should be observed.

1. *Drabs.*—There a great variety of these, produced with the following colors: Chrome yellow, Germantown black, Venetian red; or burnt umber, raw umber, or burnt sienna, with white, and a small quantity of yellow ochre.

2. *Brown Stone.*—Yellow ochre, Venetian red, with black, and sometimes a small quantity of white lead; or, another, with mineral paint

of different shades, with yellow ochre and black, either with or without white lead.

3. *Gray Stone.*—Germantown black, Venetian red, with white lead.

4. *American Green*, or *Gray Stone.*—Yellow ochre, Germantown black, chrome green, with white lead; or, another, raw umber, with a small quantity of yellow ochre, with white lead.

5. *French Gray.*—Indian red, or vermillion, ultra marine blue, and drop black, with white lead.

6. *Slate.*—Black, and Venetian red, with white lead.

7. *Sage.*—Raw umber, Prussian blue, and Venetian red, with white.

8. *Dark Blue.*—Prussian blue, with white lead.

9. *Light Blue.*—Ultra marine, blue with white lead.

10. *Sky Blue.*—Ultra marine blue, with white lead, and a small quantity of drop black.

11. *Violet.*—Vermillion, ultra marine blue, and drop black, with white lead.

12. *Lilac.*—Drop black, Prussian blue, and Indian red, with white lead.

13. *Peach Blossom.*—Carmine, or Chinese vermillion, Prussian blue, with white lead or

zinc. Will make a most delicate, clear color.

14. *Rose.*— Crimson lake, with vermillion, with white lead or zinc.

15. *Beautiful Rose color for Ornamenting.* — Carmine lake and silver white.

16. *Salmon.*— Chrome yellow and Indian red, or burnt sienna with white.

17. *Straw.*— Yellow ochre, or chrome yellow, and a small quantity of red lead, with white lead.

18. *Buff.*— Venetian red, stone ochre, or French ochre, with white lead.

19. *Cream Color.*— Chrome yellow, with white lead.

20. *Pearl White.*— Prussian blue, crimson lake, and drop black, with white lead.

21. *French White.*— Indian red, drop black, and Chinese blue, with white lead.

22. *Tan Color.*— Yellow ochre, Venetian red, ultra marine blue, and burnt sienna, with white lead.

23. *Dove Color.*— Germantown black, and burnt sienna, with white lead.

24. *Pea Green.*— Chrome permanent green, with white lead.

25. *Grass Green.*— Chrome yellow, and Prussian blue, with a small quantity of chrome green. There are four greens: chrome green

(three shades), permanent green, verdigris green, and Paris green, which is very beautiful for blinds.

26. *Olive Green.*— Chrome yellow, and black, or raw umber, yellow ochre, and Germantown black.

27. *Bronze Green*, No. 1.— Yellow ochre, chrome green, with Germantown black.

28. *Bronze Green*, No. 2.— Chrome yellow, chrome green, and a small quantity of drop black.

29. *Chocolate Color.*— Venetian red and Germantown black, with a small quantity of white lead.

30. *Lemon Color.*— Lemon chrome yellow, with white lead.

31. *Orange Color.*—Chrome yellow, vermillion, and red lead.

32. *Amber.*— Burnt umber, yellow ochre, and burnt sienna, with a small quantity of white lead.

33. *Snuff Color.*— Burnt umber, yellow ochre, Venetian red, and Germantown black, with a little white lead.

34. *Drabs* and *Browns.*— There are a variety of drab and brown colors made by mixing fireproof, mineral and metallic paints with white lead and black; they are the most common in use.

35. *Sea Green.*— Yellow ochre, drop black, Prussian blue, with a small quantity of white lead.

36. *Leather Color.*— Chrome yellow, red lead, black or burnt umber, with white lead.

37. *Flesh Color.*— Chinese vermillion, light red, yellow ochre, with white lead.

38. *Gold Color.*— Vermillion or red lead, chrome yellow, with white lead.

39. *Lead Color.*— Germantown black and white lead; with zinc it makes a beautiful shade.

40. *Steel* or *Iron Color.*— Germantown black, and a small quantity of drop lake, with white lead.

41. *Earth Color.*— Venetian red, chrome green, chrome yellow, with white lead.

The gradations of colors or shades are produced by a varied portion of different colors added to the white lead in small quantities, and continued until the desired shade is produced; enough should be mixed at once to cover the entire job, as it is very difficult to get it twice the same color.

The ten shades are produced from five colors, by mixing only two colors at a time.

Black and white make a lead color.

Black and red make a brown color.

Black and yellow make a bronze dark green color.

Red and white make a flesh color.

Red and yellow make an orange color.

Red and blue make a purple color.

White and yellow make a straw color.

White and blue make a sky blue.

Blue and black make a blue black.

Blue and yellow make a green.

BURNING COLORS.

Take a pan deep enough to keep the color from flying out, which it is very apt to do when hot; then crush the raw sienna before burning. It is much better to burn it yourself than to buy of a druggist, because then you are sure it is pure, and you can make it light or dark as you please. To make a light red, burn good French or English ochre; burn it the same as sienna, stirring all the time, so as to burn it even. You can burn lamp black, to take out the grease; it works lighter and dries much better. If necessary, the painter can burn his own umber, which is done the same as sienna. The burning of colors is sometimes very convenient, when they can not be obtained at the store. It is better to burn the sienna yourself especially for graining mahogany.

GRAINING.

The art of graining is one of the most beautiful connected with the business of house painting, and should be done with a firm hand and without fear; it should be studied from the natural wood, and to become a proficient in the art requires considerable power of imitation, and a great deal of study. The imitations are done both in oil and distemper, that is, water.

MAHOGANY GROUND COLOR.

White lead charged with red lead, chrome yellow, and a small amount of Venetian red. This color should be of a deep orange cast.

MAHOGANY GRAINING COLOR.

Burnt sienna, with the centre darkened according to fancy with vandyke brown or burnt umber.

WALNUT GROUND COLOR.

White lead charged with venetian red, and a small quantity of black or blue or burnt umber. This color should be a dark lilac or of reddish cast.

WALNUT GRAINING COLOR.

Burnt umber, burnt sienna, and a small quantity of Venetian red, with sometimes a little rose pink.

MAPLE GROUND COLOR.

White lead charged with a little Venetian red, and burnt umber. This should be tinged very light.

MAPLE GRAINING COLOR.

Raw umber, raw sienna (equal parts), with a little yellow ochre.

ASH GROUND COLOR.

White lead, charged with raw umber, and a small quantity of yellow ochre.

ASH GRAINING COLOR.

Raw umber, raw sienna, with a little Venetian red.

ROSEWOOD GROUND COLOR.

Give the work two coats of Venetian red, very thin, and vermillion if required to be very bright.

ROSEWOOD GRAINING COLOR.

Rose pink, vandyke brown, with a small quantity of drop or Germantown black.

DISTEMPER GRAINING.

SATINWOOD GROUND COLOR.

White charged with chrome yellow. This ground color should be a very light cream color.

SATIN GRAINING COLOR, LIGHT.

Take raw sienna, burnt umber, and sometimes a little Indian red.

SATINWOOD GRAINING COLOR, DARK.

Take raw sienna, raw umber, and a little vandyke brown.

TULIP GROUND COLOR.

White lead charged with burnt ochre, and a little yellow ochre. This should be a light flesh color.

TULIP GRAINING COLOR.

Rose pink or drop lake, with a small quantity of burnt sienna.

WHITE WALNUT GROUND COLOR.

White lead, charged with yellow ochre and Venetian red, colored to a light buff.

WHITE WALNUT GRAINING COLOR.

Vandyke brown, and a little raw umber.

CEDAR GROUND COLOR.

White lead charged with Indian red, and a small portion of chrome yellow. This should be a very bright flesh color.

CEDAR GRAINING COLOR.

Drop lake (or rose pink) with a little raw sienna.

HAIRWOOD GROUND COLOR.

White lead charged with yellow ochre, chrome green, and black, equal parts. This is a light dove color.

HAIRWOOD GRAINING COLOR.

Raw umber, and a small quantity of chrome green; the over-grain, raw umber and raw sienna.

GRAINING IN DISTEMPER OR WATER COLORS.

Graining colors should be ground separately, in small cups, and mixed with sour beer on a piece of glass. They can also be ground in soft water, or vinegar weakened; a little gum arabic should be put with the water, to make the color hold to varnish.

TO VARNISH WATER-COLOR GRAINING.

Give the work two coats of varnish, the first quite thin, and go over it rapidly; the second coat can be put on very heavy. As a general thing, but two coats of varnish are given, but for furniture, where an extra gloss is required, give three coats.

TO MIX GROUND COLOR FOR DISTEMPER GRAINING.

Mix the color with two parts spirits turpentine, and one part linseed oil, with a sufficient quantity of Japan drier to dry hard. The ground color should be a dead color.

IMPLEMENTS USED IN DISTEMPER GRAINING.

One badger hair blender, two over grainers, three pieces of sponge, two small varnish

brushes in tin bindings, a bunch of bristles, and a piece of chamois skin; and for ash, use a graining comb.

SHELLING.

Give the work two coats of white lead, and, when dry, grain with rose pink ground in sour beer. Grain with a piece of putty; cover the work with rose pink, then roll the putty in your hands, holding one end, move the other up and down, thus forming shells which are very beautiful; blend very light after making the cuts; give two coats of varnish. This is admirably adapted to boxes and other light work when executed with skill.

TO GRAIN CURLY MAPLE.

Take a piece of buckskin, wet in beer or water, stretch it over a piece of stiff pasteboard; by working it up and down across the work, coarse or fine curls will be produced; blend across the work softly; when dry it is ready for varnishing.

I have seen splendid imitations produced by the above colors in distemper. With a little care, the beginner can make a passable job, but some instruction in the use of tools is very

necessary. The distemper colors, with a few lessons, cost me twenty-five dollars, and I have never regretted the money thus expended.

OAK GRAINING.

This is the standard of all imitations in wood, being chiefly used in house painting, car painting, etc.; being done in oil, it is very difficult to manage. It can be done in distemper very well, but the preference is given to oil.

WHITE OAK IN OIL

This oak is grained in almost a white ground graining color, raw umber, with a little best yellow ochre, and Paris white or common whiting.

WHITE OAK MEDIUM IN OIL.

The ground should be a deep cream color; the graining color burnt umber, burnt sienna, best yellow ochre, with Paris white or common whiting.

RED OAK IN OIL.

This ground color should be a deep reddish flesh color; the graining color is burnt sienna,

burnt umber, and a small quantity of Venetian red, with Paris white or Spanish whiting; Paris white is always preferred.

POLARD OAK IN OIL.

This ground is a deep buff color, and the graining color burnt umber, burnt sienna, best yellow ochre, Paris white or Spanish whiting.

OAK GROUND COLORS.

The ground color is mixed with one half oil and one half spirits turpentine, with driers enough to dry it very hard, so that the combs will not cut, or the graining color strike in. In making the different ground colors, charge white lead with such colors as will produce the different shades to the respective oaks, from a tinged white to a very strong buff color.

CHESTNUT GRAINING.

This is becoming very fashionable, and is a beautiful grain; it is done in oil the same as oak, but is more open, and without lights cut in it. It will eventually compete with oak as a standard graining.

CHESTNUT GRAINING IN OIL.

This ground should be a reddish buff color; white lead charged with Venetian red, and the best yellow ochre. The graining color is burnt sienna, burnt umber, a small quantity of Venetian red and French ochre, with Paris white.

INSTRUCTIONS IN MIXING OIL GRAINING COLOR.

OAK GRAINING COLORS.

First grind the Paris white or whiting in oil; then grind the different colors separately, adding small portions of the colors to the white, until the desired shade is produced. For medium oak, a regular amber color is desirable. The different proportions for oak graining colors can only be ascertained by experiment; use four parts linseed oil, two parts spirits of turpentine, two parts Japan drier; this solution is mixed and rubbed on very thin, with a brush that is partly worn, for a new brush is too soft, and the color can not be rubbed out thin enough with it; then take four or five tablespoonfuls of painters' cream to the gallon of color; this is to make the graining color comb well, and to keep it from

running together. Remember, these colors are to be mixed very thin, if you wish for a neat job.

TOOLS USED IN GRAINING OAK.

One set of steel graining combs, and four rubber combs, cut four different sizes out of rubber packing, such as is used for belting — that without threads is best; and a soft piece of old cotton flannel, or old linen table cloth, is best to rub out the hearts with.

GLAZING OR SHADING OAK.

Take the same color you grained with, and put in the shades, burls and knots, and glaze the stiles with it. In glazing the stiles, rub out very thin; in making a burl, take the brush and rub on the spot that you wish to put the burl, then take the cloth and rub out carefully. This shade is the most natural and the softest that can be produced, and the best imitations can be produced with it; but there is still another, which is done with water colors, with burnt sienna and burnt umber; this is a harsh shade, and is not used by those who understand the oil shade.

VARNISHING OAK.

It is customary to give but one coat of varnish; for extra work, two coats; and where the work is exposed to the weather, a little good linseed oil is a help to it, especially where it is good copal varnish.

MARBLING.

BLACK ITALIAN GOLD MARBLE.

First give the work two coats of dark lead color, sandpaper very smooth; then two coats of drop black; mix the color flat, with a good portion of Japan dryer, to make it dry hard; sandpaper well with very fine sandpaper; then go over the work with the black, and marble in the color while fresh, running in the clouds with a sash tool in a lead color; then run in lead-colored veins; then run in veins with a yellowish-gold and flesh color, and sometimes a little greenish cast; the veins run in oval, diamond, and careless round shapes; in spots where the crossings are the heaviest, run bright vermillion and chrome yellow streaks in lightning streaks; then run fine bronze seams through the work, and sometimes heavy blotches, done by dragging the brush unevenly;

take a small portion of bronze and lay it on a piece of glass, then dip the brush into turpentine, then dip it into the bronze, and enough of the bronze will adhere to the pencil to run in the gold veins. For marbling, two coats of varnish is sufficient.

BLACK EGYPTIAN MARBLE.

The ground is the same as in Italian marble; the lead clouding is done nearly the same; the veins are run in large blotches, and branch off in oval shape, with light lines; the blotches are made with a gold color and flesh tints; red and yellow are introduced into the edges of the blotches; the gray veins are run over the most of the work; in running these seams and veins, the work should not be run too uniformly, but should be varied occasionally.

SIENNA MARBLE.

The ground color of this marble is made by charging white lead with burnt sienna, and a small quantity of chrome yellow or French ochre; the ground should have a yellowish flesh tint; give two coats, and marble in the third; mix the ground colors rather flat; the graining color is made of burnt sienna, lightened with a little lead; use chrome yellow

with sienna for some of the veins, also burnt umber toned down; run the clouds with a sash tool; the clouding is made with ochre, sienna, umber, and a little white; run small veins with a camel-hair pencil. This marble is used most on plastered walls, laid off in blocks.

PIKE'S PEAK SIENNA MARBLE.

The ground is made by charging white lead with yellow ochre and burnt sienna to a deep buff color; give two coats; the third coat is marbled into while fresh, as in the other marbles. The grain of this marble is quite different from most other marbles, in being dressed on the side; the appearance is almost the shape of a heart piece in oak, with beautiful flakes all over the face; these are blended in with burnt sienna and chrome yellow, toned down almost to a flesh tint. Some of the flakes are made with India red and burnt umber, lightened with white lead. When the marble is dressed on the edge, the seams run almost the length of the slab; this makes a beautiful marble, and when well imitated will give good satisfaction.

ITALIAN WHITE MARBLE.

This is done by first giving the work two or three coats of white lead, and marbling in the third or fourth; run the clouds in with a sash tool, with a light lead color; most of the veins are of a lead or grayish cast, but sometimes of a green or blue cast. All white marbles are done with the same colors, but in Italian white marble the veins are more full than in common American marble. Before commencing this work, visit a marble shop and look at the *real* marble; there you will find far more instruction than any written description can give you. Marbling is one of the finest branches of the trade, and when skillfully wrought produces a fine effect.

DOVE MARBLE, GROUND AND GRAIN.

The groundwork for dove marble is a warm gray, made of black, white, and a small portion of Venetian red; give two coats, and when dry take some of the same color, and mix one color lighter and two darker, bordering on black. This is a beautiful marble when well applied.

DARK GRAY MARBLE.

This ground is a medium lead color, with a small portion of green; give two coats, and in the third grain, while wet, a green, lead color, and black, and a very little tinge of pearl color. The grain in this is very short, with quite a variety of blotches and veins.

VERDA ANTIQUE.

This marble has a dark, blue-black ground, and the work is a variety of greenish blue blotches, of a variety of shapes; the veins are run in with a pencil, and are of a different shape from all other veins, being more open and larger; these colors are blended in well.

JASPER.

This is a very beautiful and fancy marble, and is never introduced in large masses except in imitations. The ground color is a yellow stone or yellow flesh color; then long triangular spaces are carelessly thrown in with a brush, exposing part of the ground between the colors, using clear burnt sienna and a light green; then take a clean brush and some clear turpentine, with a little copal varnish, very thin; sprinkle the work, and it leaves blotches

by spreading; then run in blotched veins with a dirty-looking flesh color, some of the same kind with white, and others with lake or sienna. This, if well done, is very beautiful.

BLACK AND GOLD MARBLE.

This derives its name from its black ground and gold veins; there are three colors in this marble, and to balance them is the greatest difficulty. In graining the marble, the ground is black; mix two shades of green, lightened with white lead, and one gold color. This marble is one mass of blotches, showing the groundwork in spots, and the greens and gold color well blended; use the gold blotches to finish gold bronzes.

BLACK VEINED SIENNA MARBLE.

This marble is grained on a yellowish buff color, and the veins run transversely across the slab, with black and umber, and occasionally an orange vein; the veins are made very uneven, and with no uniformity, forming very odd angles, squares, ovals and uneven figures.

NORWEGIAN SLATE.

The ground of this is charged with green and red, with white, making a dull, greenish slate

color, but as light as pearl color. The grain is made of chrome green, black, and another with raw umber and lake. The veins run in this nearly the same as in sienna, only some larger. This makes a nice imitation.

AGATE.

This has a most beautiful appearance, and is quite a favorite with many. The ground for this is of a milk whiteness, and the colors for the veins are composed for some parts of lake, and others with raw umber, another with green and black; the lake and the umber is used in the body of the work, and the dark green and black for the heavier veins that run through the slab, with small veins breaking off from the large ones. The other colors form the appearance of separated flakes, that divide in various shapes, which can be produced by taking clear turpentine, with a little varnish in it, and sprinkling while fresh.

DOVE-GRAY GRANITE.

The painter very rarely attempts to imitate any other than the common fine grained granites. The term granite was used in a very indefinite sense, and in fact signified any granular stone; but it has now a more

restricted meaning. Granites commonly consist of mica, quartz, and hornblend or feldspar; two of these minerals are always present, being necessary to compose the rock. Some varieties of granite contain large crystals, or fragments of feldspar, quartz or hornblend, and these are by far the most beautiful specimens. For the imitation of these, greater skill and care are required than for the more common varieties, and we have seldom seen them attempted. First, two coats of dove-gray color, mixed with white lead charged with raw umber, and a small portion of yellow to give a dove appearance; then mix raw umber and black with a little white lead, and throw in the spots nearly all over the work, then sprinkle with turpentine and let it set; then throw in the black and cream color spots. A sienna granite can be produced by using a buff ground, and sienna and yellow for specks.

GREEN LAVA.

Green lava is a fictitious marble, taken in all probability from some variegated specimen of lava, colored by copper. Its ground is a very light pea green, with a yellowish cast introduced, in large pieces. The veins are a green and a dark slate color, with a very fine

black, and raw sienna dapple; it is veined similar to agate.

NAPOLEON AGATE.

The ground for Napoleon or Boulogne sandstone is white lead charged with red and umber; the tint is reddish buff; the veins or dapple are made by mixing the color quite thin, and taking the small open sponge, saturating it, rolling it over the work at intervals, and blending.

RED PORPHYRY.

The ground for this marble is a dark reddish brown, made of vermillion and black; then sprinkle the work with red of two colors and white, very thin, so that the spots will spread, and then finish with a gold color.

SWISS PORPHYRY.

This is considered the most valuable; the ground is black, and is imitated the same as the above; black and vermillion, forming a color about two shades lighter than the ground, is used in sprinkling the work.

SWEDISH PORPHYRY.

The ground is a grayish stone color, made of white, black and umber; when this is dry, spread over the work a thin coat of turpentine, and sprinkle with a deep gray color; then with a dark lead color and a little red; then an orange is used in the same manner.

Having described the process by which the painter imitates the various woods and marbles commonly introduced in the art of painting, the information here given, when combined with the observation at all times necessary to give a complete acquaintance with any art, will enable the reader to judge as to the manner in which the painter has performed his work, and whether he has done all that is necessary to give the required effect. Those who read with any intention of practicing the art, may find many hints which may be of value, not only as preventing an erroneous mode of execution, but also directing them to that which is established by the experience of the most successful workmen.

SCOTCH AGATE.

This is done by first giving the surface three coats of a deep buff color, the last being a dead color; sand it perfectly smooth, then it

is ready for marbling. First grind some raw and burnt sienna, and grain in distemper, then dapple part of the work in water colors; then prepare the marbling colors, which are white, dark flesh color, a bluish green, sienna, and burnt umber, equal parts; then varnish the work and marble while fresh; this gives a very beautiful sienna agate.

All marbling is done in oil or turpentine. I can give a general idea of the different marbles, and how to mix the colors and shades required, but can not put in print how each mark of the brush is made; a good, thorough understanding of how the work is to be done can be given, and that is half the battle, therefore I have written as minutely as possible, and would advise the beginner to study the marble in the stone, and to take lessons if practicable; in the end it would be for your interest.

BLACK GRANITE.

This is made by giving the work one coat of lead color and two coats of black; then the lead color and white; throw in the streaks with a short brush, by striking a stick so as to throw it on the work. The best imitation can be made by clouding the work in the last coat, being careful not to cloud it too much.

WHITE GRANITE.

First mix the ground color a pearl white, and give the work three coats; cloud and throw in the specks in the last coat. It has a more natural effect to use a small quantity of Venetian red in the lead color that is used for throwing in the specks; also throw in a few black specks.

GRAY GRANITE.

This is done the same as white graniting, only the ground is a very light lead color, and only white and black are used for the specks.

Graniting is well adapted to finishing stone walls that are plastered or cemented, and laid off in blocks. I have seen walls very nicely finished with two of the granites thrown in alternately, and blocked off, producing a very nice effect, and giving good satisfaction.

STAINING.

A BRIGHT ROSEWOOD STAIN.

Take alcohol one gallon, camwood two ounces; let it stand in a warm place twenty-one hours, then add extract of logwood three ounces, aquafortis one ounce; when dissolved,

it is ready for use. It makes a very beautiful ground, and a good imitation. Give the work one or more coats, according to the depth of color desired, then take the following to make the streaks: Take iron filings, and put strong vinegar upon them; let it stand a few hours and it is ready for use. Now grain over the first with an overgrainer cut down so as to be stiff, that you may have command of the brush, or a fair grain may be made by using a rubber comb, cut for the purpose. With some practice, a neat piece of work can soon be accomplished, and a fair imitation made.

A LIGHT SHADE OF ROSEWOOD STAIN.

Take equal parts of logwood and red chips, and boil in sufficient water to make a strong stain. Apply it to the work while hot, one or more coats, as the depth of the work requires to produce a light rosewood shade. For the dark grain, use the iron filings, as in the above stain.

CHERRY STAIN.

Take soft water three quarts, anatto four ounces; boil in a copper kettle until it is dissolved, then put in a piece of potash the size of an egg, and keep it on the fire half an hour

longer, when it is ready for use; bottle up for keeping. This is applicable for all kinds of light wood.

A COMMON STAIN FOR CHERRY.

Take Venetian red and chrome yellow, mixed half with oil and half with turpentine, with a small quantity of drier; apply this to the work, and rub off with old cloths or soft shavings. This gives the work a good cherry color, especially white woods.

MAHOGANY STAIN ON WALNUT.

This is one of the most natural stains for mahogany that can be produced, and if well done it is a very fine imitation. Take aquafortis, and bind a rubber made of cloth on the end of a stick, for if a brush is used it will soon be spoiled by the aquafortis; after coating the walnut over with aquafortis, set it in a warm place to dry; it should be well dried before varnishing, or the work will spot; varnish in the usual way. This is applicable to all kinds of light work; by taking walnut veneering and staining, it gives a perfect imitation, and is hard to detect; in fact, no one but a thorough workman can tell it from genuine mahogany.

COMMON MAHOGANY STAIN FOR LIGHT WOODS.

Take burnt sienna and a small quantity of burnt umber, mixed with sour beer; put on with a brush or sponge. This makes a very cheap stain for counter tops, etc.

A COMMON STAIN FOR WALNUT.

Take burnt sienna and burnt umber, if a reddish walnut is desired; or, if a dark walnut, use most of the burnt umber, mixed with sour beer; put on with a brush, and when dry, varnish after using the sandpaper.

A BEAUTIFUL WALNUT STAIN.

Take asphaltum, on light wood, and give one thin coat; sometimes use a little Venetian red with the asphaltum.

ASPHALTUM ROSEWOOD GRAIN.

Give the work one coat of red lead and Venetian red, equal parts; when dry rub well with sandpaper, then give the work one coat of asphaltum, and run drop black in with a flat brush to imitate the grain. This is a very good stain.

A CHEAP ROSEWOOD STAIN.

Mix rose pink with sour beer, and grind

drop black mixed in beer; go over the work with the rose pink, then run in the grain with an over-grainer. Soft water, with a small solution of gum arabic, will do in place of the beer.

COLORING AND STAINING ON TIN, ALL COLORS.

No. 1. Gum sanderac 1 lb, balsam tolu 2 oz., balsam fir 2 oz., acetate of lead 2 oz., linseed oil ½ pint, turpentine 2 quarts; place all but the turpentine in a kettle, and put it over a slow fire, gradually increase the heat until all is dissolved; then take it from the fire, and let it stand until cool; stir in the turpentine while quite warm, and strain through flannel cloth. This is a clear, transparent stain, and by the following instructions most colors can be produced; this mixture must be handled with care.

2. *Black.*— Prussian blue ½ oz., asphaltum 2 oz., spirits of turpentine ½ pint. Dissolve the asphaltum in turpentine, pulverize the blue with a little of it, mix it well and strain; then add the whole to one pint of the first mixture.

3. *Blue.*— Prussian blue and indigo, both rubbed to powder, of each ½ oz., spirits of turpentine 1 pint; mix well and strain; then

add to this one pint of the first until the desired shade is obtained.

4. *Red.*— Cochineal ½ oz., spirits of turpentine ½ pint; let it stand 14 hours; then strain, and add of the first to suit the fancy.

5. *Yellow.*— Take of the root of curcuma, pulverized, 1 oz.; stir in one pint of the first solution until the desired shade is produced; then strain as before, and let it stand four hours.

6. *Green.*— Take equal parts of yellow and blue; mix them with the first until the desired shade is produced.

7. *Pink.*— Mix a little of the blue with more of the red, then add of the first according to fancy.

8. *Orange.*— Mix a small quantity of the red with a larger portion of the yellow; then add of the first until you get the right shade.

Apply the above preparations with a soft brush; by following the above directions a great variety of shades can be produced.

GOLD LACQUER FOR TIN.

ALL COLORS, FINE, TRANSPARENT AND BEAUTIFUL.

Alcohol in a jar or flask ½ pint, gum shellac 1 oz., red sanders ½ oz., turmeric ½ oz.; set the

solution in a warm place, and occasionally shake the flask; let it stand ten hours or more, until dissolved; then strain the solution into a clean flask, cork close, and it is ready for use.

When the solution is used as varnish, it must be applied with a soft brush, flowing it on smoothly; or, if the work will admit, it may be dipped in the solution, and laid in an oven to dry, being careful that the stove is not too hot.

Be careful not to rub or brush the work while drying; one or more coats may be put on, according as a light or dark shade is desired. If the varnish should become thick in time, thin it with alcohol. By the following modifications, all the colors are produced.

2. *Rose Color.*— Proceed as above, substituting ½ oz. of finely ground best lake in place of the turmeric.

3. *Blue.*— The blue is made by substituting pulverized Prussian blue, ½ oz., in place of the turmeric.

4. *Purple.*— Add a little of the blue to the first.

5. *Green.*— Add a little rose color to the first.

Here, again, philosophy gives a variety of

shades, with only a slight change of colors and material.

TO PEARL OR CRYSTALLIZE TIN.

Sulphuric acid 4 oz., soft water 2 or 3 oz., according to strength of acid, salt 1 oz.; mix well; heat the tin in an oven, then with a sponge wet with the mixture, washing off directly with clear water; dry the tin, then apply Demar varnish; this brings out the pearling, and is well adapted for water-coolers, tumbler-stands, spittoons, and various other articles of tinware.

FROSTING ON GLASS.

Frosting on glass is done in various ways:

1. Mix sugar of lead with zinc, one half oil, the other turpentine; lay it on with a brush, and pounce with a piece of cotton cloth in the form of a ball; rub on the color very thin. This makes a very nice frosting.

2. Mix 2 ℔s. white lead and ½ ℔ patent drier with a little coach varnish; use two parts oil and one part spirits of turpentine; pounce as directed in the first.

3. Mix zinc 2 ℔, patent dryer ½ ℔, oil two parts, sugar of lead 1½ oz.; mix thin and lay on even; pounce with the pouncing ball.

4. For a very light frosting, take a ball of putty and pounce carefully over the glass; it produces a very nice frosting, and although very delicate, will prevent persons from looking through.

The object of frosting is to prevent passers-by from looking through the windows in saloons, halls, etc.; it can be made to look very nice by laying off in diamonds or double bars, or running a border around the glass. Take a soft piece of pine and shape it like a pencil; with this any lines can be made; by using a string a variety of circular lines can be made, which have a fine appearance.

ORNAMENTING FROSTED GLASS.

Take a camel-hair pencil, and make the ornaments on the glass with pure white, and when dry frost over with a color that has the least black in it, so as to make a pearl white; this has a very beautiful effect.

PAINTING CALCINE WINDOW SHADES,

FOR STORE FRONTS AND BUSINESS HOUSES IN GENERAL.

To paint window shades is a neat job, and must be done in water, which is more durable

than oil or turpentine, because they rot the window shades, especially where the sun strikes them. For bright ultra marine blue shades, first dissolve white glue and size the curtains with it, with a small portion of ultra marine in the sizing; but mix the next coat quite strong with ultra marine blue, and have the glue size that you mix with it strong enough to keep from rubbing; give two coats of color. The canvas should be well stretched on stretchers adapted to the purpose, and when dry, you can letter in oil without its spreading; the curtains can be ornamented and striped with water colors very nicely in this way. Another way is to mix one-half Paris white with the blue; it will be some lighter, but it gives a very pretty shade. Still another blue is done in this way, made to show the threads of the canvas; mix as above, and rub on the color with a sponge. This gives the curtains that appearance. All these colors must be applied while hot, with a calcimine brush.

PARIS GREEN SHADE.

This is made by using Paris green and the same size as in the blue shades, but the sponge can not be used as in the blue; this is a hard

color to use, and frequently requires one more coat; the Paris can be used with it to some advantage. A very nice green can be made by using light permanent green, putting in Paris white to lighten it; apply it while warm with a calcimine brush; other colors can also be made; red lead, chrome yellow, with Paris white, will make a buff for shades.

CHAIR PAINTING.

This is done in various ways. A quick way is to give the chairs one coat of Venetian red; when dry, putty and sandpaper; then give one coat of rose pink, mixed with ¼ copal varnish, ¼ Japan, ¼ oil, ¼ turpentine; run in the grain with a short stiff brush, with Germantown black; while the rose-pink color is wet, the black must be mixed flat; then varnish, stripe and ornament. Another is done by giving the work a coat of black, and when dry run in the grain with an over-grainer, with red lead and a little Venetian red ground in sour beer; then give it a coat of rose pink, ornament, stripe and varnish, and the work is done.

For a nice rosewood grain, take the iron filings stain of rosewood, found in another part of this book.

For light-clolored chairs, such as maple, make a rubber of cloth fast to a stick; with this stain the chairs with aquafortis; when they are thoroughly dry, rub with sandpaper, and varnish. This is well adapted for light cane chairs.

A BRONZE GREEN.

This is a nice color for chairs; mix chrome yellow, chrome green, and Germantown black. Indian red and a little Prussian blue make a very nice plain color.

BRONZING OR ORNAMENTING CHAIRS.

Use a size made of good copal varnish, and a small quantity of boiled oil; take a varnish brush with but little in it, and rub the portion you intend to ornament; have the patterns ready cut out of paper, lay them on, using a pouncing ball made of buckskin; dip in the bronze carefully, so as not to injure the patterns; then stripe and varnish.

There is another way of ornamenting, with German metal, and shading with transparent color. And still another, by taking silver white in tubes and mixing it with varnish; and when it is of the right tack, rub in fine colors

with pumball flowers; leaves, vines, etc., can be done in this way; that is ornamenting with paint.

A beautiful finish for chairs is done by painting shells for ornaments; another is done by laying German metal or gold leaf in shells and shading on them.

TO PAINT COTTAGE FURNITURE LIGHT COLORS, DELICATELY TINTED.

Give the work two coats of white lead, mixed with turpentine and Japan; then grind zinc in varnish; give two coats, thin, with turpentine; then give one or more coats of white Demar varnish. This work is generally striped and ornamented with flowers, etc.; transfers are made for this kind of work, which are very beautiful; they are also made for dark work. These are put on with a spatula; first size the work with Demar varnish, or, what is better, with the mastic varnish; lay on the transfer, and rub it down with a spatula; wet it with a sponge of clean water, then rub it down again; after waiting a short time, wet again, raise the paper, and you have a beautiful ornament left; when dry, varnish.

WAGON PAINTING.

Wagon painting is mostly done with red lead, mixed with raw linseed oil, with a great deal of Japan to make it dry hard. Considerable difference of opinion exists among painters as to whether raw or boiled oil should be used. We think raw oil the best, because, when sufficient drier is used, it becomes very hard and will not rub off, as is the case when boiled oil is used. I admit that boiled oil has the best gloss at first, and dries the quickest; but paint two wagons, three coats each, one with boiled and the other with raw oil, stand them out exposed to the weather three or four weeks, and you will find at the end of that time that the raw oil has the best gloss, and the paint is hardest, which is very necessary to make a good job of wagon painting. Red lead is the standard color for wagons, but others are used on large wagons. Buff, striped with Indian red, makes a very pretty gearing, but these light colors are principally used on small, one-horse wagons; pea green is another good color; the priming should always be light with these colors. Large wagons that are to be painted with red lead, are generally primed

with Venetian red, but if mixed with one half yellow ochre, it is much better.

In mixing the colors where the work is to be varnished, use about two-thirds turpentine and one-third oil, with a strong portion of Japan drier; all wagon work is given three coats of paint, and generally varnished also. The wagon beds are usually varnished; they are painted brown, green, and often red, where the gearing is painted light colors.

The best way to ornament wagon beds is to use short camel-hair pencils; a good painter can ornament very well in this way, but a new hand should get patterns, if practicable, and work from them some time; soon, if he has any taste at ornamenting, he can dispense with the patterns. In ornamenting, mix the paint to the proper consistency in small cups, taking for instance a cream or buff color as a ground, and a green or blue as another, running in the ornament with these two colors, then run in the yellowish-cast vermillion, and tip with white or green with white; these colors make a fair ornament on brown.

SCENERY PAINTING.

First stretch the canvas, by tacking the work through the middle of the frame for flats

or wings — that is, through the middle of the frame, around the flat; then glue down the other half of the canvas with hot glue; when dry, size in the canvas with a strong glue and whiting size; it should be warm, and strong enough so it will not rub off; all the colors should be kept warm while working them.

Paris white is best adapted to scenery painting; zinc white is very good in some cases; ultra marine and Prussian blue are chiefly used; chrome yellow, chrome green, umbers, burnt and raw sienna, Venetian red, vermillion, lakes, yellow ochre, Paris green, drop black, and in fact most of the dry colors are used. For gilding, gold and silver German metals are used; and in grotto scenes, frostings of different colors. The tools used are a fresco brush, a calcimining brush, flat fitches, artist brushes, and a couple of pound brushes, or large brushes in tin wrappings, with straight edges, made very thin, so as to bend readily in the hand.

This painting is universally done in water colors, and a size of glue is used in all colors, strong enough to hold without rubbing. In painting the drop curtain, be careful not to get the size too strong, as the work might peel off; but on the floats, wings and flies, there is

not much danger. Soft water is best in all water colors; the canvas generally has one coat of color, then proceed to draw the figures, panels, etc.

FRESCO PAINTING.

First give the work two or three coats of plain coloring; it is mixed with Paris white, and tinted to suit the fancy; it is mixed with water, and a glue size strong enough to keep from rubbing off; it is often necessary to mix a lump of lime, about the size of your fist, in the first coat, especially where the walls are greasy; use soft water if possible; the colors are the same as in scenery painting, and must invariably be used when warm, but not hot; then lay off the panel work, decorations and designs; run the coloring in the panels, and paint the mouldings, ornaments and figures; the coloring should be very delicate in this work. The tools used in frescoing are nearly the same as in scenery painting; a large calcimine brush, flat fitches, artist brushes, a charcoal line, a pair of fresco straight edges, made very thin and beveled on the edge, and a resting stick; cups can be made to suit the convenience of the workmen; also, the German and French metals are generally used.

CALCIMINING.

This is the art of coloring and whitening walls. By this process the most beautiful wall coloring, and the whitest and neatest work can be accomplished. This work exceeds any other now before the public; it is far better for walls and ceilings than any other, for it never injures them, while by many other processes they are completely spoiled; but the calcimine can be removed at any time, without the least injury to the plastering; the way to remove calcimine is to take warm water and sponges, with which it can be removed without much trouble.

To mix calcimine, dissolve 10 lb of Paris white in soft water, then dissolve 2½ lb of white glue; add to the Paris white sufficient to keep it from rubbing up. It is best to try the strength of the calcimine before putting on; it should be about the consistency of second coating in oil; strain through a common flour sifter, and work while warm.

FOR COLORING CALCIMINING.

1. To make a Flesh color — Use burnt sienna with Paris white.

2. To make a Pink tint — Use Venetian red with Paris white.

3. To make Purple — Use ultra marine blue and Indian red with white.

4. To make a Straw color — Use French ochre or yellow ochre with Paris white.

5. To make a Buff color — Use yellow ochre and a little Venetian red with Paris white.

6. To make a Pearl White — Use drop black, ground, and a small quantity of Venetian red with Paris white.

7. To make a Lilac color — Use Indian red and a little drop black with white.

8. To make a Light Drab color — Use burnt umber and yellow ochre with Paris white.

9. To make a Pea Green color — Use chrome green with Paris white.

Chrome green can not be used to advantage with lime in the calcimine, for the chemicals will turn the green and spoil the color. I have seen it turn a clear buff where lime was in it.

It generally requires *two* coats to make a good job, but sometimes *one* will do it; if you do not get a good job with two coats, take sponges and water and wash off the work, after which you will have no difficulty in making a good job.

The tools used are a pair of good calcimining brushes, a small fitch, and a flat brush two inches wide, for working around stucco work

and ornaments. It requires two to work to any advantage. Where there are spots that can not be made bright, use a solution of alum; and for filling the cracks in the walls, make a putty of Paris white and a little plaster of Paris, mixed with water and a little glue size; this is called calcimine putty.

PAPER HANGING.

Paper should be handled in a very cleanly manner, and with much care; the edges should be trimmed evenly, and lengths enough cut to go entirely round the room. Commence in some corner, so that if it should not match in finishing, it will not be noticed. Have a nice clean board, wide enough to hold the whole width of the paper, and long enough to hold the whole length; then size the paper, fold up the bottom with one large fold, about two feet long, then lay the paper on your arms, and hang it right at the top; then pass the cloth, or wisp broom that you rub the paper down with, down the middle of the work, about two feet, rub to each side from the middle, being careful to rub out all the blisters; after rubbing down the work smooth, never touch it again; trim off the bottom.

Your paper should be cut long enough to trim about an inch off the bottom of the paper, so as to make a neat job at the bottom.

TO MAKE A SIZE FOR THE PAPER.

Dissolve a small portion of white glue; then boil the paste of flour to the consistency of starch. Another mode is to take boiling water and stir flour in it, and use it without boiling; use a small quantity of alum in all the paste. For a very delicate paper, use a size of clear, white starch. By being careful to match and keep the paper clean, and keeping the paste from the outside of the paper, you can soon make a neat job and give good satisfaction. There is a very nice paper that imitates marble or stone, which requires to be laid off in blocks and varnished; this makes a very nice finish for offices, etc.

TO VARNISH WALL PAPER.

Give the work a coat of isinglass or clear white glue; this size should be strong enough to hold the varnish from striking in, so as not to spoil the work; when dry, varnish with clear, white Demar varnish, one or two coats, according to the gloss which it is desired for

the work to have. The beauty of paper-hanging and of varnishing consists in keeping the work clean. I have often kept a basin and towel standing by my work, and washed my hands every few minutes, in order to do a neat and nice job. To varnish posters, business cards, etc., use the same process as for varnishing paper.

RE-PAINTING LOOKING-GLASS FRAMES.

This is used on old gilt frames: Give the work one or two coats of American vermillion, ground fine; mix with two parts of turpentine, one part Japan drier, and one part linseed oil; when dry give the work one or two coats of asphaltum varnish, then one coat of varnish, and when dry tip with gold the ornaments and prominent parts on the frame. You should be very careful to procure a good quality of asphaltum varnish; if it can not be purchased, it can be made in the following way: Take 1 ℔ of gum asphaltum, 1 pint of spirits of turpentine; put in a large open-mouth bottle, and put it in a warm place to dissolve; add, when dissolved, ½ pint of good copal varnish, and one gill of good boiled oil; shake well to mix it. This will give a pure,

good asphaltum varnish; for the gold size, use the quick drying size

TO MAKE REMOVABLE ORNAMENTS AND LETTERS ON LOOKING-GLASSES.

Take a piece of common rosin soap, cut the shape of a pencil, and make the letters and ornaments; and to use colors with the soap, rub it on with a soft pumball; dry in the soap, and by careful handling it has a beautiful effect. Another is done by giving the glass a coat of white dry zinc, in water or sour beer; when dry, lay off the work with a sharpened stick, ornaments, letters, moon, stars, or any device you fancy, cleaning off the surplus zinc; this has a very beautiful appearance when well executed.

SIGN WRITING AND LETTERING.

I will endeavor to give all the instruction necessary in the general business of sign and banner painting; and there are some of the most useful items and tricks in the business.

In the first place, no one can teach you unless you try to learn. I have seen as many as twenty men in one shop, and but one could letter; it was all carelessness that they never

learned, they never tried to inform themselves on any point. In the first place, it is necessary to learn to draw. The reason that there are not more sign painters, is that most young men never learn to draw, but idle their time away at foolishness. Drawing is indispensable to lettering, for when you once learn to draw, you can soon learn to letter.

The art of lettering is one of the most desirable parts of practical painting, it being a part that pays best. Some sign writers are very speedy at their business, and they can invariably command the highest wages; they generally receive twice as much as the plain painter. In learning sign painting, depend upon yourself; strive with a will, and I will guarantee you will succeed. I will now give you instruction in the different departments of lettering.

LETTERING ON RAW CANVAS IN OIL.

Grind the color in oil thick, and thin with turpentine and a double portion of Japan drier; then take a basin of clean, clear water, and a large sponge, and keep the canvas quite damp with it. While lettering, this will prevent the

color from spreading, and it makes the canvas work much better. I use this mostly where quick work is desired, on banners where there are to be letters and caricatures.

Another way is to make a size of glue, and add a small quantity of Paris white; size the work one coat, and when dry you can letter very readily on it with different colors.

FOR TRANSPARENT SIGNS ON CURTAINS.

Dissolve white wax in turpentine, and apply it while hot, spreading over the work with a brush, and when dry, letter or paint what you wish in transparent colors; this can be used for painting pictures that are desired to be transparent. This method is one of the most beautiful that can be put on canvas, giving a clear, pure transparency.

Some painters are in the habit of using boiled oil, but this is very wrong; it soon rots the canvas, it is never clear, and makes a poor transparency.

TO MAKE IMPRESSIONS ON JAPAN TINS.

For laying out the lettering, take the best brown or wrapping paper, and lay out the design on it, just what you want; then turn it

over, take a piece of chalk and rub it over, rubbing it out with a cloth, and sufficient will adhere to the paper; then place the design on the Japan tin, and run over the work with a pencil; raise it carefully, and you have a very fine impression without soiling the tin. Another way is to take some of the delicate wall papers, and lay off the work the same as in the above, and the color of paper will make the required impression. Lettering Japan tins is one of the most difficult things sign painters have to contend with, this being easily spoiled, but by these impressions you have a good start, which is half the battle. Look under the head of "sizes" for the gold size.

IMPRESSIONS ON PATENT LEATHER,

FOR FIREMEN'S BELTS, CLUB BELTS, ETC.

The best way of taking impressions is to take the words that you intend to lay off, and draw them on a heavy piece of foolscap paper in the shape that you desire; then on the belts; cut the paper in the size of the belt; then prick in the copy with a pin; pulverize some chalk on a board, take a soft cloth and rub in the chalk; then rub it on the opposite side of the copy, and lay it on carefully; then press your

fingers, passing your hand over the pattern, and it will leave a good impression; you can do several before re-chalking the pattern. The old method is to prick the pattern, and pounce the work, which is a poor way, because it leaves so much of the white, that the gold size spreads.

Impressions can be made of patterns or pictures, by chalking the opposite side of the pictures, and then tracing the picture or letter on the work. In painting tin signs, all except Japan tins should be smalted or flocked, as there are a variety of smalts and flocks. Very nice signs can be made on tin; a tin sign should have two or three coats before smalting, and care should be taken not to leave any tack on the smalt, or flock will stick and spoil the job; sometimes zinc is used, but it is not good for signs, the paint not lasting well on it, but sheet iron will do very well if coated thoroughly.

A sign painter has a great many old signs to paint, and it is often necessary to remove the old paint from them, especially where they have been smalted. This can be done by using concentrated lye or potash; take one pound and dissolve it in warm water, making it quite strong; lay the work down, and keep

it saturated with the potash water, watching it so it will not eat the wood; then scrape and wash off thoroughly every particle of the potash before painting. By following this method, you can use it on various work that is cracked or injured.

FOR SMALTING SIGNS.

After painting the work — always being careful to have it dry hard, so the smalt or flock will not stick — then lay off the letters and cut around them, mixing the color with boiled oil, and as near the color of the flock or smalts as possible; then sift in the flock or smalts with a small hair sieve, if it can be had, all over; then knock off the surplus smalts. Most gilt signs are smalted or flocked.

FOR GILT SIGNS.

Give the work three good coats, and the smoother the better; then lay off the work, and size it in; lay the gold, and then proceed to shade; the shading should dry without a tack, and when hard cut around the letters, and proceed to smalt or flock the sign; dress up the edges, and the work is done.

In making large signs for outside, the gold

size should be laid on one day, and the gilt the day following; the leaf can be laid with a tip, or the gold can be laid out of the paper or book, by cutting it up in sizes to suit the work. When you want to lay gold on the outside or in the air, and the wind interferes, it can be done in the following way: cut the leaf in pieces such as you desire, then raise the paper and draw it over your hair; then lay it back on the gold, and rub over the paper again, then the gold adheres to the paper, and you can lay it on wherever you please. Some use cotton, and some a camel-hair pencil, in swan quills, for rubbing off the surplus leaf; and some use a rabbit's foot — a tame white rabbit's foot is best, it is much softer than the wild.

GOLD SIGNS ON CANVAS.

First size the work with a gum-arabic size, where you intend to gild, or size the work with a glue size, and when dry take the gold oil size, and size in the letters or design, and watch when the right tack, lay on the gold leaf. In gilding you should not try to lay on the gold when the size is too moist, but wait until it has the proper tack; the drier the size

is, so much the better, if it holds the leaf, the nicer the job is and the brighter the leaf looks.

ENGLISH GILDING ON GLASS.

This is a beautiful burnish gilding, and is invariably done in water. The best size is made of Russian isinglass, being dissolved the same as glue. The Russian isinglass is much harder to dissolve than any other isinglass or glue, and therefore it is much better, it standing much better. When you commence you should have an earthen cup and a tin cup, on purpose to boil it in; use this size while warm, or, if thoroughly dissolved, it can be used when cold as well. This size is very weak, and can only be obtained by practice, or by trying the strength before using, which is best.

There is another size that is thought much of among some of the gilders: Dissolve, in half a pint of water, a very small quantity of Prussian isinglass, boiling it alone in a gold-size pot, made on purpose; when thoroughly dissolved, take a hard-boiled egg and lay it in the size; let it stand twenty-four hours, then pour off and strain, and it is ready for use.

In doing this gilding, you should use a gilder's cushion, and cut with a gilder's knife;

handle the leaf with a tip, rubbing down the gold leaf very lightly, with a piece of clear cotton when dry, being very careful not to rub too hard. This work generally requires two coats of gold leaf. The backing of the gold on glass is the most important, for on it depends whether the gold stands. The best backing is made with one half asphaltum and one half black; this should have considerable Japan drier in it, and a fair proportion of oil.

The tools used in this gilding are a flat camel-hair brush, for laying on the size, a gilder's cushion, a gilding knife, a gilding tip of camel hair, a piece of cotton, small straight-edges, a half round is best, a pencil made of a piece of cedar sharpened, and a soft piece of sponge. It requires some practice to do a No. 1 job, but, with the directions given here, you will be able to make a fair job. The best jobs on glass are dressed with a stick sharpened, and small straight-edges — these are used for straightening the edges, by dampening the end of the stick, and rubbing it straight; the stick is used in laying off figures, such as any design, after the gold is used. The design can be shaded so as to imitate steel engraving beautifully, by taking small artist brushes that are partly worn off, and cutting the bristles off

very short; by being very careful, you can shade so as to imitate print; the brush being very stiff, cuts the gold in the finest lines, and produces a beautiful effect; then back up, and the backing shows through the gold where you desire it, and the work is perfect, but the letters are backed before they are cleaned up. All this work is made from designs on paper or patterns. After making the design on paper, the letters are drawn backwards, so as to read from the front, for all gilding on glass is done on the back of the glass; tack the design upon the front of the glass; go on the inside to lay on the gold, or, if the glass is out of a frame or window, lay the pattern on a table, then place the glass over it correctly, and lay on the gold covering, to design under after the gold is on; when dry, take the pattern and whiten it on the back with Paris white, rub it on with a woolen cloth in the paper thoroughly, and dust it off a little; then mat the gold, by passing over carefully with the size, and when dry lay the pattern on over the gold, take a pencil and run over the design, raise the pattern, and you will have a good transfer of the design and letters; then back up, and when the backing is dry, take a sponge, dampen it, and wipe off the surplus or waste gold; then clean up

with the straight-edges and stick; the edges can be made perfect with this mode of work; after that, you can proceed to shade the work. The best way to mix shading is to mix the colors with a little good coach varnish, a little oil, and a small portion of drier; but tube colors are mostly used in lettering on glass, in fact, they cover much better.

ETCHING ON GLASS.

In this work cut in the lettering or ornaments with asphaltum, made three parts of spirits of turpentine and the other part good Japan drier and copal varnish; flow it on heavy, and leave such parts exposed as you wish to be operated on; let it stand at least twenty-four hours to dry; then surround it with a cord, soaked in beeswax, and lay it around the glass to keep the acid from leaking or running off over the edges; then pour on flouric acid, and let it remain from six to twenty-four hours, according to the depth required to be cut; then pour off the acid, wash the glass with a little water, and remove the cord and wax; then wash off the asphaltum with a little alcohol, and all is done. Now, if you desire, you can gild either the letters or the surface; either has a very nice effect. Glass grinding is of

considerable value in sign work, and gives a very nice effect to etching: Take a wide piece of brass, so as to pass over the lettering or etching; then use emory, and keep it wet with water, and you can grind the whole surface, leaving the letters clear, which leaves the appearance of fine frosting, and gives good satisfaction.

SILK BANNERS.

This is to painters a very difficult job, and very delicate to handle, and should be done with neatness and care, first having a frame made the size of the silk, then tack it on, being careful to stretch it all even and alike; then make a design of the work, and take an impression on the silk, by coloring the design on the back with chalk or Paris white, as in other work; then run on the design with a pencil, after placing it on the silk, and you get a good impression; then size the work with gum-arabic, only sizing the parts that are to be painted or gilded on; this sizing is to keep the color or oil sizes from spreading; the gum-arabic must be very weak, but at the same time strong enough to keep it from spreading, and when dry lay on the gold size, gild and shade. If you desire a design of any kind, the gum-arabic size will answer, but be sure and temper

your size right, and there is no doubt but you will succeed; use cleanliness, and be careful not to drop either paint or sizes on the work, for a drop of either may spoil the whole.

BRONZING.

Bronzing on iron work, such as pillars, railings, etc., paint your work two coats of the desired color, and in the third coat put two-thirds of copal varnish in enough of the color to cover the work, with a small portion of boiled oil; give a coat of that preparation, and when the right tack, rub in the bronze with a pumball made of soft buckskin; when dry, varnish. There are some colors that look well with bronze, but bronze-green is the favorite color.

BRONZING PATTERNS FOR CHAIR ORNAMENTING, ETC.

These are done by sizing the work very evenly, and rubbing out very thin; and it requires the size to be just the right tack, and just dry enough so as not to tear the patterns.

PAINTING BLACK BOARDS.

First give the board one coat of lead color, mixed one-half turpentine and one-half raw

oil, with a strong portion of Japan drier; then grind the black, and mix it in one-half spirits of turpentine, one-fourth knot killer or shellac varnish, one-fourth oil, and a fair portion of Japan drier; sand off the work well, each coat, giving it two or three coats of the black, and when perfectly hard, this makes a fine surface for marking on; and when on plaster, size with a light glue size before painting.

ORIENTAL OR CRYSTAL PAINTING

The instruction on this painting is, first to make the glass perfectly clean, then place it over the picture you wish to copy; then sketch the outlines with some sketching preparation, by carefully tracing all the outlines on the glass, and the leaves, drapery, etc., very carefully; after the sketching is dry, lay on the background, inside of the outlines, till you have all covered, and when the background is dry, put on the colors, commencing with the greens, if any are in the design, and finishing with yellow; when through coloring, lay on the background upon the remainder of the glass; after it is properly dried, take tinfoil and crumple it in your hand, so as to wrinkle it thoroughly, then partly straighten it out and

lay it over the figure, and to keep it in its place paste strong paper over it in such a manner that it can not slip about, letting the paper cover the whole of the glass; then place the wood backing behind the glass, and you will find all complete and looking well, if well executed. The colors used in this painting are chiefly Prussian blue, crimson, white, yellow, lakes, rosean, white zinc, and carmine; these colors are in tubes; they are mixed in Demar or white varnish; you can readily mix them on a pallet with a small pallet knife or spatula, or if you have no pallet you can use a piece of glass. These colors should all be more or less transparent; in fact, any of the transparent colors will work well, using more or less Demar varnish. In mixing your greens, you can add a small portion of yellow to lighten up; for purple, crimson and blue; for orange, crimson and yellow; for wine color, crimson and blue; pink, crimson and white; brown, red and asphaltum, as you fancy; for black, use crimson and dark green until the desired shade is produced, and where it is required very black, use asphaltum and drop black; for your background, use white zinc, or pink white or flake white; mix with turpentine and boiled oil, with a good portion of Demar var-

nish, and for sketching the outlines use asphaltum, and when required a little darker, add a small quantity of drop black, a little turpentine and linseed oil to make it run from the brush easily.

A FINE STENCILING BLACK THAT WILL NOT SPOIL YOUR STENCIL PLATES, IF MADE WITH PAPER.

Dissolve a small portion of glue, and mix with lamp black as thick as paste, having the glue quite weak, and then work in the stencil brush thoroughly; rub out the brush on a board, and by moistening it the least bit with water, you can make several good stencils without replenishing your brush.

A TRANSPARENT BLUE FOR POLISHED STEEL.

For steel or iron that has been polished, take clear copal varnish, grind a small portion of Prussian blue, and mix thoroughly; coat with this, and it has a good effect; if required deeper, add more of the blue, and if you wish a light green cast, use a small portion of chrome yellow; for a variety, use a little burnt sienna in copal varnish; this has a beautiful effect on steel or iron that is polished.

LETTERING SHOW-CARDS.

Show cards are generally made by lettering a fine glazed porcelain card-board, lettered generally with asphaltum, and often lettered with the different colors of railroad card-board. There is a card-board gotten up for the purpose, with blue and other colors; these can be lettered with any color to suit the taste, by mixing the paint one-half copal varnish, a quarter Japan, a quarter spirits of turpentine.

LETTERING POSTERS.

This can be done by lettering with water colors, mixed with a white glue size, on any kind of paper; where you wish them very large, you can use wall paper that is very light, lettering on the back of the paper.

LETTERING DOOR PLATES.

There are a good many ways of lettering door plates; a very good job is done by using gold or silver on glass, and it can be done by using for a size the common spittle, and in fact all kinds of small jobs can be done in this way, by using spittle for a size; back, and clean with a stick, and you may back with any color you desire. Another way to make them is by

cutting around the letters, and backing with tinfoil; but I think little of it. You can procure the plates by having them cast at any foundry, or sending to any of the cities for them.

TO GILD OR PAINT ON WORK THAT MUST BE DONE IN A HURRY.

This is done by giving the work two or three coats of shellac varnish; then sand it off well, and use one coat of color; or, for gilding, two coats of shellac varnish, and size in with a quick-drying size, and gild the same day. This is only used in cases of necessity. You can give a board two coats, or one coat of shellac and letter or work very nice on it.

PAINTERS' CREAM.

This is used on different kinds of work, and is very useful in its place. It is made by dissolving white wax in benzole; it can be dissolved by shaking occasionally, without heating; it should be about the thickness of cream. This is used in all the oil graining colors, and can be used very successfully where a very heavy coat is desired; it will keep it from running, and you can use your color as you please.

KNOT KILLER.

There are but few painters who attach sufficient importance to knot killing their work. The pitch and pine will show in any color you can mix, therefore you should be very careful to kill all the knots. I care not if it is in the dark browns or black, all should be killed. Knot killer is simply made with ½ lb gum shellac, dissolving it in one quart of strong alcohol; when thoroughly dissolved it is ready for use.

GOLD SIZE IN OIL.

To make or procure a good oil for gold size, it should be very old, or it should be made thick by standing in the sun. To take an old oil for size that is fat, use copal varnish in it to dry it. A good oil size holds its tack for some hours. To make oil fat, can be done in the following manner: Boil the oil, throw in a small quantity of litharge, and take a lot of white lead skins in a lead keg; shake it up thoroughly; it would be well to put the head in the keg: bore a hole in the head, and set it in the sun for two or three months; then pour off and cork, and it is ready for use. This is one of the best gold sizes in oil.

Another is made by taking good drying or boiled oil and copal varnish. This makes a fair oil size.

A QUICK OIL SIZE.

A quick drying oil size is made with a very small portion of boiled oil and a good drying coach varnish, with a very little Japan.

COLD-WATER SIZE FOR GLASS.

Take a very small quantity of Russian isinglass; boil thoroughly in distilled soft water until it is all dissolved, then it is ready for use.

TO PREPARE OR SIZE CANVAS OR SILK TO RECEIVE THE GOLD SIZE.

Dissolve a little gum-arabic in soft water, and size only where you intend to cover. This is mostly used on silk banners.

BRONZING SIZE.

Copal varnish two parts, and boiled oil one part; thin with turpentine. This is put on very thin.

SIZE FOR PAPER HANGING

A very good paste or size is made by boil-

ing a flour paste with a small portion of white glue and a little alum. Another is made by taking boiling water and stirring in the flour, without boiling, add a small portion of alum. And still another, for very delicate paper, where the paper has mouldings, ornaments, panels, etc. This is made by making a starch paste, with a small portion of alum and a very little white glue.

A SIZE FOR VARNISHING WALL PAPER

Is made of white glue, just strong enough to keep the varnish from striking through on the paper.

A SIZE TO LETTER ON CANVAS

Is made with a small portion of white glue and a little Paris white.

A SIZE FOR SCENERY PAINTING

Is made of good glue with a portion of Paris white.

TO PREPARE CANVAS FOR LANDSCAPES IN OIL.

Take white lead mixed very thick, and spread it on with a pallet knife, by scraping

the pores of the canvas completely full. The lead must be tolerably stiff; give time to dry well.

CLARIFYING LINSEED OIL.

This process is for clarifying oil for very delicate uses. Take one gallon of linseed oil, raw, 2 lbs. of Spanish whiting, and put it in a large-mouthed bottle; shake it up thoroughly two or three times a week, and keep it in the sun until it settles; then pour off carefully, cork up, and it is ready for use.

COPAL VARNISH.

Take one gallon of linseed oil, ¾ lb of clean rosin, 1½ lb gum copal, and ½ lb of sugar of lead; boil the above over a slow fire two or three hours, and when you take it off, while warm, add two quarts of spirits of turpentine.

A COMMON FURNITURE VARNISH.

Take ½ gal. linseed of oil, add 1½ lb of rosin, ½ lb of sugar of lead, ⅜ of gum shellac; boil over a slow fire three hours, until all the gum and sediment is thoroughly dissolved; take off the fire, and add 1 qt. of spirits of turpentine while warm.

A VARNISH FOR VIOLINS AND MUSICAL INSTRUMENTS.

Take 1½ qts. of spirits of wine, ¼ oz. gum of sanderac, 2 oz. of gum shellac, 1 oz. gum mastic, and 1 oz. elmi; put where it will keep warm, or in the hot sun; shake it occasionally, and when dissolved it will be ready for use; strain and bottle.

GUM SHELLAC VARNISH.

To the best alcohol, 1 gal., add 2½ lbs. gum shellac, in a can or jug, and set in a good place to keep warm; when thoroughly dissolved it is ready for use; straining is a great help to it.

A BLACK VARNISH FOR IRON WORK, OLD BUGGIES, ETC.

Take 2½ lbs. of asphaltum, ¾ lb drop black; put into an iron pot with ½ gal. of oil; let it stand over a slow fire three hours, or until the asphaltum is thoroughly dissolved; then add 1 qt. of turpentine, and when done add 1 qt. of good copal varnish. In making the varnish, be very careful not to let it get too hot, and, while making, stir occasionally; do not add your turpentine or varnish while on the fire,

but while it is quite warm, after taking it off, for it is apt to burn if made too hot.

A VARNISH FOR FANCY BOXES, GUN STOCKS, AND LIGHT ARTICLES.

Take gum shellac 10 oz., gum sanderac 1 oz., Venice turpentine 1 drachm, alcohol 1 gal.; put in a can and shake occasionally; put in a warm place twenty-four hours, and when all the gums are dissolved it makes a fine spirit varnish.

PICTURE OR MASTIC VARNISH

The mastic varnish is in general use; it is made by dissolving gum mastic in clear spirits of turpentine; all others being objectionable, from the difficulty of removing them when necessary; such are spirit varnishes, that is, those which are prepared in alcohol, or from their color and hardness combined, as the oil varnishes which were frequently employed in earlier times, a familiar kind of which is copal varnish. Gum mastic, which can be procured from our druggists, dissolves very readily in spirits of turpentine, by the application of a gentle heat in the warm sun, or by standing it near the fire in a vessel stopped but not closed.

Often this varnish can be procured at the druggists, at very moderate prices.

JAPAN DRIER FOR WAGON WORK.

Take linseed oil 1 gal., $1\frac{3}{4}$ ℔s. of gum shellac, $\frac{1}{2}$ ℔ of litharge, $\frac{1}{4}$ ℔ of red lead, 2 oz. of burnt umber; boil over a slow fire three hours, take off and add 1 qt. turpentine.

JAPAN DRYING OIL.

Take 1 gal. of linseed oil, 6 oz. litharge, 3 oz. red lead, 4 oz. burnt umber, 2 oz. sugar of lead, 2 oz. sulphate of zinc; boil until it will scorch a feather, over a steady fire, but not too hot. Use this for grinding the colors, and add turpentine to them. If you desire a gloss, use no turpentine, only the clear oil; this leaves a fine gloss, and is well adapted to Venetian blinds, etc.

A No. 1 JAPAN DRIER.

Take 1 gal. of linseed oil, $\frac{1}{2}$ ℔ gum shellac, $\frac{1}{2}$ ℔ litharge, $\frac{1}{4}$ ℔ burnt umber, $\frac{1}{2}$ ℔ red lead, $\frac{1}{4}$ ℔ sugar lead; boil in the oil from three to four hours, until all of the sediment is dissolved; then remove from the fire, and while

warm, add 3 qts. of spirits of turpentine, and let it stand until cool, then can for use.

A FINE BENZOLE JAPAN DRIER.

Take 2 gals. of linseed oil, 2 lbs. red lead, ⅓ lb gum shellac, 2 lbs. litharge, ¾ lb burnt umber, ¼ lb sugar of lead, 4 oz. magnesia; pulverize the above, then boil until thoroughly dissolved; boil three or four hours; then set off to cool, and while warm add 2 gals. of benzole, and can for use. This should be used only where benzole is used in the paint, for turpentine never mixes well with benzole; this makes a No. 1 article.

DRYING OIL FOR LIGHT WORK.

Take ½ gal. of linseed oil, ¾ lb gum shellac, ¾ lb litharge, ½ lb red lead, 4 oz. magnesia. The process of making this is different from the other drying oils; it is made in the following manner: Take a coarse linen or cotton cloth, sufficiently large to hold the ingredients, tying up, and by means of a piece of iron laid over the pot, swing the bundle of ingredients in the oil, then boil it three or four hours; take off and can for use. The object in this is to keep the oil perfectly clear.

A LITTLE GEM DRIER FOR WHITE.

Dissolve a portion of sugar of lead in soft water, then mix with your color; it will soon mix by stirring. This will work well with white and delicate colors.

THE QUEEN CITY JAPAN DRIER.

This is a No. 1, never-failing Japan drier, and I recommend it above all others: Take 1 gal. of linseed oil, 1 ℔ red lead, 1 ℔ litharge, ¼ ℔ burnt umber, ¼ ℔ gum shellac, 3 oz. magnesia; boil this over a slow fire three or four hours, until all the ingredients are dissolved; then take it off, and while quite warm, add 1½ gals. turpentine, and can for use. This is an excellent Japan drier for carriage work.

POLISHING, VARNISHING, ETC.

Polishing and rubbing down work is a very neat job, and requires considerable care. First give the work three or four coats of good copal varnish, as it requires; then grind pumice stone, or buy that which is pulverized; then cut a couple of squares, about three or four inches, of old wool hat for rubbers; then take a pan of water and a sponge, wet the work,

and keep it wet while rubbing; then take the rubber, wet it thoroughly, and dip it in the ground or pulverized pumice stone; then rub the work until it is perfectly even and no brush marks in it, being careful not to rub through, for if you do, the spot is past remedy; another thing is not to rub the edges through, for it is very hard to repair blunders of that kind; then wash off the work with a chamois or sponge; then you can finish the work either by polishing or by giving it a flowing coat and then polishing.

To polish your work, you must choose a piece of rotten stone free from all particles of grit; then proceed as in the rubbing down, using a clean piece of the woolen hat, but the rotten stone does not require to be ground; wet the rubber and the rotten stone, and rub the rotten stone on the rubber, when a sufficient quantity of the stone adheres to the rubber for the work; rub with this until the surface is perfectly smooth, then wash off with water; then take a piece of soft cotton corduroy, saturate it with sweet oil, and rub thoroughly with it; then take another piece of cloth corduroy, have some wheat flour, and rub off all of the oil with the flour, rub so as to warm the work,

and you can bring it to the highest finish and make a beautiful job.

FINISHING WITH A FLOWING COAT.

Rub down the work with pumice stone, take a good quantity of flowing varnish, put on a good heavy coat, and flow it on smoothly; this is called the flowing finish. Before polishing or rubbing, you should give the work plenty of time to harden, or you can not make a nice job of polishing. All painted work does not require as many coats as the raw wood; most of the grained work has but two coats of varnish, and oak in oil has but one coat as a general thing.

TO FINISH BY SCRAPING.

A new method of finishing is done by giving the work two coats of varnish, and scraping off leaves the pores of the wood filled, and walnut is very hard to fill; then give the work one, two, or three coats, as you desire.

A REVIVING POLISH.

This is used on old furniture, and to polish and revive the old varnish. Take ¼ oz. of al-

cohol, ½ oz. muriatic acid, 8 oz. linseed oil, ½ pt. best vinegar, 1½ oz. butter of antimony; mix the above thoroughly, putting in the vinegar last.

FRENCH POLISH FOR FANCY BOXES.

Take 12 oz. of gum shellac, 2 oz. gum sandrac, 1 gal. best alcohol; dissolve by putting in a jug and shaking occasionally, keeping it in a warm place twenty-four hours.

GERMAN POLISH.

Take 10 oz. of gum shellac, ¼ oz. gum sandrac, 1 drachm Venice turpentine, 1 gal. linseed oil; put in a jug and keep in a warm place, shaking it occasionally until it is thoroughly dissolved.

The manner of working this French polish is to make a rubber out of woolen cloth and saturate it with oil; then apply the polish to the cloth, and continue to rub until you have a satisfactory finish. With a little elbow grease this makes very nice work.

Varnishing is one of the neatest and most particular jobs the painter has to do. Great care should be taken to spread the varnish on even, and not to drag the work as though you

never expected to get through. You should spread the varnish with a firm hand, and finish it with a light hand, running the brush straight and even. The quicker you varnish, the better the job is done, so that the varnish has time to flow together, and not leave brush marks. It requires considerable practice to become proficient in varnishing. All varnishes should be used for the work they are made for; copal varnish should be used for furniture; coach varnish for coaches, carriages, etc.; such articles as are used and handled much, like chairs, tables, etc., should be varnished with varnish that dries very hard. For doors and house work, that is grained oak, you can add to good drying copal varnish a little boiled oil, which is a great help to it, where it is not overdone; all oil would not do by any means.

TO MAKE PATENT COACH VARNISH.

Take 1 qt. of Canadian balsam, 1 qt. of spirits of turpentine; put both in a bottle or varnish can; let it stand four days, and it is ready for use.

TO MAKE A COMMON RUFFSTUFFING.

Take 6 lbs. of whiting, ½ pt. of Japan drier,

½ pt. of linseed oil; mix the oil and the whiting with the drier, then add turpentine to grind it down; thin with the turpentine sufficient to lay on with a brush, and when dry sandpaper it ready for colors.

D. S. MAC'S WATERPROOF PRIMING FOR BRICK.

Dissolve 1 lb gum shellac, ¾ lbs. sal soda, in 1 gal. of water; when boiling hot, add ½ lb of pulverized rosin; stir, and when the rosin is all melted and thoroughly mixed, it is ready for use; while boiling, be very careful not to let it boil over. This solution is well adapted to painting brick work; it fills the pores of the brick, and receiving the following coats, it prevents the oil from soaking into the brick. For priming brick work it is better than oil and lead, as every painter knows that gum shellac is a thorough waterproof article, and for soft brick it can not be beaten. To mix it, mix your paint as usual, and one-half of this or more to the color; then proceed as usual; give it time to dry hard before second coating. This is well adapted to old weather boarding that is very dry.

RUBBER WATERPROOF PAINT.

Dissolve five pounds of India-rubber in one gallon of linseed oil, and if it is too thick reduce it with boiled oil, and if too thin use more rubber. You will find this a good rubber waterproof paint for canvas, etc.

STUCCO PAINT FOR BRICK AND ROUGH WORK.

This is highly recommended, and has proved to be a very superior article, it having been used on the east end of the White House at Washington, and is said to have stood twenty-four years. The following is a recipe for making it, from an experienced hand, thirty-five years in the business: Take clear unslacked lime ½ bushel; slack it with boiling soft water; cover it while making, to keep in the steam; strain it in a strainer or sieve, and add one peck of salt, well dissolved in water; then boil rice, 3¼ lbs., boiled to a paste, and stir in boiling hot; add Spanish whiting 1 lb, and clear, nice glue, or white glue thoroughly dissolved previously in a glue kettle; it is better to put the glue to soak some hours before using or boiling it; then add 4 or 5 gallons of soft water, mix thoroughly, and let it stand twenty-

four hours, when it is ready for use; be careful to keep it clean. This paint should be used while hot, and it can be kept hot by using a large kettle. You can use any brushes, but I should prefer a small calcimine brush, with some small brushes, in order to make a neat job. This answers well in the place of oil paint, and is much cheaper. It stands well; it is said to have stood the weather twenty years or more, and to have lost but little of its brilliancy in that time. The stucco paint can be done by using liquor to dissolve the colors; for a nice brown, use fireproof or metallic paint; for a red pink, use Venetian red; for a buff, use yellow ochre, and other colors can be used to advantage. For inside walls, tinge your colors very light, but the best way is to observe the rules for coloring; all the various shades can be produced, as in oil, by mixing with liquor, except greens, which will not work with lime, the chemicals and lime spoiling the green. Always mix enough at a time to cover all the work at one coat, or at each coat.

TO MIX COLORING FOR STENCILING AND MARKING.

Take Germantown black and mix with turpentine, and for stenciling add a little oil and

Japan; then use a short, stiff brush to stencil, with a long hair brush you will drag the paint under the stencils or letters, and blot them for marking on paper; some use ink. There is considerable tact in marking, but some pick it up very readily. If on wood, the marking spreads, and if you wish to make a very neat job, run over the work with shellac varnish one coat; it dries in two minutes.

A TEST FOR WHITE LEADS.

To test the quality of white lead, take a pair of apothecaries' balance scales, and weigh equal weights of two whites, and mix black, and divide equal portions of it; then mix on a glass the white leads with the black, and the one that is lightest is the best lead. Another way is to take two kinds of white lead, and put on glass two kinds of lead in separate places with a pallet-knife; raise the knife with the lead, by pressing the knife on the lead, raising the knife 2½ or 3 inches from the glass; the best lead will break off in short flakes, while a poor quality will be stringy and run from the knife; this test should be with lead without any thinning.

INSTRUCTIONS IN MAKING COLORS.

Paris Green.—Take unslacked lime of the best quality, slack it in hot water; then take the finest of the powder and add alum water as strong as can be made, sufficient to form a thick paste; then color it with bichromate of potash and sulphate of copper until the color suits your fancy. The sulphate of copper gives the color a bluish tinge, and the bichromate of potash gives it a yellowish tinge; observe this and you will not fail.

Another Paris Green.—Blue vitriol 5 lbs., sugar of lead 6¾ lbs., arsenic 2½ lbs., bichromate of potash 1½ oz.; mix them thoroughly to a fine powder, and add water 3 pints; mix well and let it stand three or four hours.

Prussian Blue.—A good Prussian blue is made by taking sulphate of iron and prussiate of potash, equal parts, and dissolving each separately in water; then mix the two together, let it stand to settle, and pour off the water.

Chrome Yellow.—Take Paris white 5½ lbs., dissolve this in hot water, and add sugar of lead 4 lbs.; then take bichromate of potash 5 oz., and dissolve as above separately; then mix the two together, putting the bichromate in last, and let it stand twenty-four hours.

Chrome Green.— Take Paris white 6 lbs., sugar of lead 3¼ lbs., blue vitriol 3¼ lbs., alum 10 oz., Prussian blue 3 lbs., chrome yellow 3½ lbs.; mix thoroughly and add 3 qts. of water; stir well and let it stand three to four hours; pour off the water and dry, when it is ready for use.

The Whites.— Although the various pigments which come within the general designation "the whites" may appear to require but a short notice, yet they are of the greatest importance, for they necessarily form a ground to receive all colors, and by admixtures with them, produce the various tints, not only those used in house painting, but also those used in the higher branches of the art.

Many pigments are in themselves too transparent to be of much value to the painter, but when mixed with white, receives a sufficient body; in fact, we may say that it is white which renders most colors serviceable. The white pigment most used in oil painting has lead for its base, and is manufactured in large quantities by different processes, the most important of which is white lead; this and zinc are the only metallic whites in extensive use. There are other pigments that are earthy, well adapted for distemper colors, but they are rarely used

with oil; the most of these are Paris white, Spanish whiting, and siliciate of clay.

Chrome Yellow.— This rich pigment, known as chrome yellow, is a chromate of lead. This substance is, as its name indicates, a chemical combination of lead with chromic acid. Chromate of iron is the mineral from which chromium, the oxides of chrome, and the chromater are most readily and economically obtained; it is a natural sort of iron, and is found in considerable quantities in a rock called Serpentine, on the Cari Hills, near Baltimore; at Portsoy, in Banffshire, and on the islands of Unst and Feltar, near Scotland.

Blue Smalts.— Smaits is a beautiful pigment, frequently possessing a richness and lustre of hue little inferior to ultra marine. It consists of glass stained by the oxide of cobalt, and afterwards ground into an impalpable powder. In the improved methods of manufacturing, the siliciate of cobalt is used for staining glass, and also for painting on earthenware; it may be formed by a double decomposition from the siliciate of copper and sulphate of cobalt.

Vermillion Red, or Cinnibar.— Cinnibar is a native red sulphuret of mercury, and has a bright scarlet color. It is found in the quicksilver mines of Hungary, Saxony, Bavaria,

and Almaden, in Spain; it is also brought from China, Japan and Mexico.

Vermillion is a valuable paint, being, when pure, bright and permanent; it is, however, too commonly adulterated with red lead, and ought in all cases to be tested, which is best done by application of heat, before it is used by the artist in work that is intended to be permanent; the pure color has a more crimson tint than when adulterated.

Indian Red.— This paint varies greatly in tint, but is more or less purple; it is a permanent color, both in water and in oil, but is rather expensive in common house painting, where large surfaces are to be covered. It is obtained from the islands in the Gulf of St. Lawrence.

Venetian Red.— This is obtained in the neighborhood of Venice, from which circumstance it derives its name. It is composed of argillaceous earth and oxyde of iron. It is a permanent and useful color.

Terra De Sienna.— This pigment is brought from Sienna in Italy. It is a beautiful brown orange color, and very transparent when applied in painting, which quality it retains after being burned, although it assumes a beautiful transparent red hue, which is of great value

for the imitation of different woods, especially mahogany and walnut; and is employed by the artist in water colors to produce the autumn tints, and with blue it forms a faded green.

Light Red Ochre.— There are various kinds of red ochre, among which we might mention the light red, which is made by calcining or burning a pure yellow ochre. It is an exceedingly useful color, both in water and in oil, being permanent and drying well.

Carmine.— Carmine is said to have been discovered by a Florentine monk, who being engaged in the preparation of some medicine in which cochineal was used, observed a bright red precipitate; and for the sale of this color his convent afterwards became famous. The manufacture of carmine was long kept secret, and even at the present day the best methods of preparing it is unknown, except to those fortunate enough to have made the discovery.

Raw and Burnt Umber.— This substance is brought from Cyprus, where it is found in beds of brown jasper. It is a massive mineral of an olive color, which becomes darker when burnt. It consists chiefly of the acid of magnesia, the acid of iron, silex alumnia. It is a very useful color, both in oil and in water; artists have an objection to it on account of its turning darker,

but in walnut and some other grains it is indispensable, it being a very nice, transparent color. The raw umber is a very valuable color in imitations of woods, and at the present day is considered indispensable.

Vandyke Brown. — This substance is a bituminous earth, generally found in the vicinity of bogs and other places where vegetable matter is in a state of rapid decay. As a color it is highly esteemed by artists, but it can only be used with the strongest drying portion, it being slow to dry. It is a splendid article for graining, especially mahogany and walnut.

Blacks.— All the blacks that are used in painting are varieties of carbon, and differ from each other chiefly in the substances from which they are produced; the most important are bone-black, blue-black, and lamp-black.

Bone-black is produced by burning bones in a close vessel, and afterwards grinding into a powder; ivory-black is made in the same manner, from the dust and the parings of the substances from which it is named; both of these are permanent, and slow dryers; bone-black has some warmer tone than that produced from ivory, which is most esteemed by painters.

Blue-black is a charcoal, made by burning in a close vessel the shells of stone fruit, such as apricots, peaches and nuts, to which may be added the cuttings of vines and other new woods.

Spanish-black is made from cork.

Coffee-black is made from the husks of coffee.

Lamp-black is a name applied to all those blacks produced by burning oleaginous or resinous substances, such as oil, tallow, turpentine and tar. The manufacturing consists in collecting the carbon thrown off by combustion. Lamp-black is a bad drier, and is also objected to by some artists on other grounds, but lamp-black has been mastered, and there are different brands of burned and prepared blacks that dry very readily, and are at present the standard of all common blacks.

Drop-black is used at the present day in preference to all other blacks for carriage painting, being a good drier and a beautiful black.

Minium or Red Lead.— This color is made by first reducing common lead, by calcining, to an oxyde of litharge, which, being ground to powder, is put into a hot furnace, exposed to a free access of air, and continually stirred with an iron rake until the color becomes a fine light

red. To grind red lead to a proper fineness, is very laborious and difficult, it being very harsh and sandy; when, however, it is well ground and made fine, it is lighter than any other red in general use, bears a good body in oil, and binds very fast and firm; it has likewise the advantage of drying readily.

Ultra Marine Blue.—There are really but two good blues for oil painting, to wit: ultra marine and Prussian blue. Ultra marine is the color, by excellence and permanence; no other pigment approaches it in beauty, and no other matches it in durability; for fire, which will alter all others, has no effect on ultra marine; precious in quality above all other blues, and beyond others in price. When ultra marine was first discovered, the price ranged as high as $20 per oz., but since it has been produced as low as 75 cents to $2 per pound. The ultra marine that is purchased varies, and there is considerable difference in depth and strength of color, the lightest being the cheapest article. This pigment is of great durability.

THE CHEMICAL COMPOSITION OF COLORS.

That the reader may understand from what his colors are manufactured, it is necessary

that he should be acquainted with some of the properties of the substances from which they are produced. Nearly all the colors employed by the house painter are made from metallic compounds, and chiefly from lead, iron, copper, arsenic, mercury, chromium, cobalt, and zinc; in some cases, from lead combined with chromium, we obtain the white lead of commerce, Naples yellow, red lead, litharge, chrome yellow and chrome green; iron when chemically treated gives the ochres, Prussian blue, sienna, Venetian and mineral reds, the mineral yellows, and some browns; from copper and arsenic we obtain green verditer, blue verditer, and mineral green; from mercury, vermillion; from cobalt, Antwerp and Thenard's blue, and the zephyrs or sky blues, and sulphate of zinc as a drier. We will not attempt to give a description of all the substances which enter into the composition of pigments in their general relation to each other; if we did, we should go far beyond what this work was intended for. If you wish further information on this interesting subject, we refer you to the Medical Dispensatory. Gum shellac is the best waterproof composition; asphaltum is the best black for iron; soft water is the best to take oil off fresh glazed glass.

CHROME GREEN, No. 2.

Take blue vitriol 5 lbs., sugar of lead 6 lbs., arsenic 2½ lbs., bichromate of potash 1¼ oz.; mix them thoroughly to a fine powder, and add water 3 pints; mix well, let it stand 3 or 4 hours; after it is settled, pour off the water, and when it is dry it is ready for use.

ROSE PINK.

Take Brazilian wood 1 lb, boil it two hours, having 1 gal. of water at the end of that time; then strain it, and boil 1 lb of alum the same way, until it is all dissolved. When sufficiently cool to admit the hand, add muriate of tin ¾ oz.; then have 12 lbs. Paris green moistened up to a thin consistency, and when the first is cool, stir them together thoroughly, and let it stand twenty-two hours; after the above mixture has stood twenty-two hours, put it in muslin bags to drain, and dry in the air. Stone or wooden vessels, and sometimes glass are used, but upon iron, tin and copper the acids will soon work, and will give a tint you do not desire.

Always observe that if water is to be mixed with strong acids, it must be added very

slowly, especially if in light vessels or vials, or you will break the vessels, by means of the great heat which is set free by the combinations. I give these few items so that painters can manufacture, or try them for amusement and the pleasure of testing them. Small quantities can be made in vials, as the chemical action is just as fine in small quantities as in large.

OILS.

I will say but little on oils, for in our part of the country, where oil is manufactured, it is unnecessary. Linseed oil being the chief article used in painting, and also the best yet produced; the old masters used various oils, but finally decided that linseed was superior to all others, for brilliancy, durability, and as the best drying oil. There are different modes of preparing oil to dry, and of boiling it, that you will find in another part of this book. There is an oil passed off for boiled oil that has never been boiled, but ingredients used and boiled with a portion of oil, poured into the barrel, and sold for boiled oil; this is often done by manufacturers and jobbers. Cotton oil is sometimes used in painting, but it is a very inferior article, leaves the work spotted, and

is a very poor drier; dealers often resorted to mixing it with linseed oil, and then selling it as first quality, but in that case the painters were the losers, it taking double the amount of Japan to dry it. There is another oil, made out of broom corn seed, that is a poor drier, leaves no gloss whatever, and dries very dull; it has been mixed at the oil mills with linseed, and passed off on the public, but painters are the losers.

SPIRITS OF TURPENTINE.

Turpentine is the standard for inside painting, and used in the manufacture of Japans, varnishes, etc.; it has been the standard, and will continue to be for some time to come. Through our late war, turpentine became very high and could not be afforded, consequently another article had to take its place; it was a great inconvenience to be deprived of turpentine, it being chiefly made in the Southern States; it put painters thoroughly to the test to work without their favorite article.

BENZOLE.

Benzole has had its run; being a very inferior article, it is at present discarded; but it was

produced in the nick of time, and served us a very good turn in taking the place of turpentine during the war for the Union; all varnishes, Japan driers, etc., were manufactured with it. There are a variety of grades of benzole, some having a very bad smell, and others being very near devoid of any smell, this last being the best. There are parts of painting very hard to handle with benzole material; for instance, carriage painting and gloss work, and to gloss walls and ceilings; these were very hard to manage. The painter might make a very white China or French gloss, but in most cases it would turn yellow after standing some time, and in Demar varnish it worked poorly, it being hard to lay on without leaving brush marks, or showing the hair marks, so you see, at the best, it is a very inferior article, and very dangerous to handle, especially where any of the compositions are to be heated. I once came very near being burnt to death with it, and if help had not come at just the right time, I should have never been able to leave the shop.

OIL REDUCERS.

This is practiced by a great many men in the business, and is of more or less injury to

the work. The following are some of the reductions practiced by painters: ½ lb of potash, with 2 gals. water, add to 4 gals. of mixed paint; or concentrated lye ½ lb, to 2 gals. of water, and mix with 4 gals. paint. Some resort to lime as a reducer, which is very bad; in fact all the alkalies are used in oils and paint, but the best and most durable is made in this manner: Take 2 qts. of soft water, 3½ lbs. sal soda, and add 1 lb of gum shellac; boil until the shellac is all dissolved, then put in a jug for use; use in all colors for outside, one-third to your paint. I will give you a cheap paint-increaser for cheap work: First make 5 gals. of oil reducer, take Paris white 20 lbs., and put in a large vessel for mixing, then pour over 2½ or 3 gals of the reducer on the whiting, or enough to soak it thoroughly, and let it stand over night without stirring; then mix 25 lbs. of white lead stirred in oil, pour into the Paris white and thoroughly mix, adding oil and the reducer equal portions; use this for white priming. By this process you can save half the oil and lead, and in second coating one-third of both. This does not mix as quick as oil, but stir a short time and it will soon mix. Sulphate of zinc and bichromate of potash will

both make the reducer; you can use the above in any of your colors.

I do not give these to you on recommendation to use, for I claim that lead and oil are the best, and that work should only be done with them. I give the reducer to you to show how some painters endeavor to turn off their work in order to out-bid, while it really only ruins the trade; and my advice is not to use any of them, unless you positively bargain for that kind of material.

TO TEST OIL PAINT.

This is done simply by taking soft water and pouring it into the color, when it is easily seen whether the paint is mixed with water or any of the alkalies; and if you mistrust you purchase oil with water mixed, you can test it the same way, by pouring a quantity of water on, and if it mixes you may depend it is adulterated with water.

BOILING OR PREPARING PAINT SKINS.

Save all your paint skins in two kegs, the light in one, the dark skins in the other; then take a large iron pot, and boil them in soft water, add sal soda enough to cut them

thoroughly; then strain while hot, and you can save considerable in a year. When you use them, mix with oil; they are good for outside painting, and they last well. Some painters boil them in oil, but that is not a very good way, because the oil thickens up, and it requires considerable time to boil in oil.

ASPHALTUM

Is the best composition for resisting moisture, and being a slow conductor of heat, it is best adapted where economy of heat and dryness are required.

GUM SHELLAC.

This is the best composition for wood in damp or wet places, therefore it is best adapted for soft brick; it dries readily on the brick, and holds the other coats of oil paint out, and the oil dries on the surface and does not strike in, as all oil color would soak the oil in, leaving the color without oil, and consequently make a poor job.

TRACING PAPER.

Spirits of turpentine, 6 parts; resin, 1 part; boiled nut oil or clarified linseed oil, 1 part; laid on with a soft brush or sponge.

TO STAIN WOOD AND IVORY.

Yellow.— Dilute nitric acid will produce it on wood.

Red.— An infusion of Brazil wood in stale urine, in the proportions of a pound to the gallon for wood, to be laid on while boiling hot, and a coat of alum water before it dries; or a solution of dragon's blood in spirits of wine may be used.

Black.— A strong solution of nitric acid for wood or ivory.

Mahogany.— Brazil, madder, and logwood, dissolved in water and put on while hot.

Blue.— Ivory may be stained thus: Soak in a solution of verdigris and nitric acid, which will turn it a green; then dip it in a solution of pearlash boiling hot.

Purple.— Soak ivory in a solution of sal-ammoniac into four times its weight of nitric acid. These make very handsome stains.

MIXING PUTTY.

In mixing or making the various kinds of putty, you should be guided by the color that you wish to match. I will give some of the different shades. To make plain putty, the

best mode is this: Take a portion of common Spanish whiting, say 10 or 20 lbs., and put it on a large heavy board, with sides nailed on three sides, in order to keep the whiting from flying out; it is also a good plan to roll or bruise it before adding the oil. In making putty you should add but little of the oil at a time, or the putty will be too soft; this should be pounded thoroughly; it is a very good way to wet up with oil; let it stand a day or two, and then do the pounding and thickening.

To Make a Walnut Putty.— Take common putty and burnt umber, working the burnt umber in until you produce the desired shade; or another mode is to use lamp black and Venetian red.

To Make Mahogany Putty.— Take burnt sienna and common putty, as in the above, and work in the sienna until you produce the desired shade.

To Make Maple or Oak Putty.— Take common putty and color it with chrome yellow, and a small quantity of burnt sienna or Venetian red. By following these directions, you can mix any color you desire, by using the different paints with the putty.

White Lead Putty. — Take one-half white lead, one-half common putty, and mix

thoroughly; if too soft, use a portion of Spanish whiting. Or another, which is good for gloss work: Take white lead and work it stiff with Paris white; this is used for puttying inside, where the work is to be finished white or with a gloss, it being easily covered, and does not sink like common putty. To make it dry hard, use a portion of clear copal varnish

STRAINING COLORS.

The straining of colors is indispensable in the use of lead, zinc, and other colors. By straining, the lead is thoroughly mixed, you can spread more color, and make the work more even, leaving less brush marks, and your job has a much finer finish. When different colors are mixed together, it is necessary to strain, for by straining the colors are thoroughly mixed; also after colors stand they soon gather a skin on them, and also on the sides of the bucket; by stirring, the skins work into the paint, which should be strained before using. You should scrape the buckets down occasionally, and pour a little turpentine on them, then strain it, and after straining you should clean the strainer thoroughly, and then it will always be ready for use. It is much easier cleaned while fresh than to let the paint dry on.

Remember, sandpapering is a great improvement on the work at all times. Use fine sandpaper, or sandpaper that has been partially worn. In varnishing the natural wood two or more coats, instead of using sandpaper, use old haircloth that has been taken from old work; you will find that this cuts smoothly without scratching, and makes a nice and smooth job.

NUMBER OF POUNDS TO THE SQUARE YARD.

Outside new work requires 1 ℔ to the square yard for three coats, and but very little difference on inside work.

On Brick Work.—For one square yard of new brick work, two coats, 3½ ℔s. of paint are required; for three coats, 5 ℔s.

A VARNISH TO PRESERVE GLASS FROM THE RAYS OF THE SUN.

Reduce a quantity of gum tragacanth to a fine powder, and let it dissolve for twenty-four hours in the white of eggs well beat up; then rub it gently on the glass with a brush.

VARNISH FOR MAPS, DRAWINGS, ETC.

Take a bottle of Canada balsam, and place it sufficiently near the fire to bring it to a perfect liquid state, then add to it an equal quantity of turpentine, and mix the two substances thoroughly together; in this manner a clear crystal varnish is formed, which will be fit for use in a few days, if kept at a gentle warmth.

A GOLD-COLORED COPAL VARNISH.

Take 2 oz. of essential oil of lavender, and when hot, add, in small quantities, 1 oz. of powdered copal; stir the ingredients until all is dissolved, then add while quite warm, in small quantities, 6 oz. of turpentine, being careful not to burn it.

The best mode to take fresh paint off, where mistakes are made in sign painting, or where any other mistakes occur, is to take a cloth with turpentine and lift off the main portion, then saturate a cloth with raw oil, clean it, and wipe dry; where turpentine is used alone it often strikes in the body coat, and leaves it soiled; it is often necessary to use oil alone.

The best mode to take paint or letters off work that is dry a day or two, is to take alco-

hol; it will remove it when nothing else will. Alcohol is very good to remove letters from Japan tin signs.

The best mode of dissolving white wax is to take benzole, put in a bottle and shake it occasionally; it will dissolve without heating, which is very dangerous.

TO MIX PAINT FOR JOINTS IN SINKS.

In putting sinks together, the joints should be put together with white lead thick as paste. To mix this preparation, take white lead, thin with three parts shellac varnish and one part boiled linseed oil.

TO PAINT THE INSIDE OF SINKS.

For the priming coat, use white lead, two parts shellac varnish, one part linseed oil, one part spirits of turpentine, and a small quantity of Japan drier; for the second and third coats, mix with white lead, and use any color to color the white that you fancy; mix one-third shellac varnish, one-third linseed oil, one-third turpentine, with a small quantity of Japan; then give one coat of copal hard-drying varnish. This mixture stands well for this kind of work, or any work where water is frequently used.

GOLD LEAF.

Gold is distinguished among metals for its ductility and malleability, and is therefore peculiarly suited for manufacture into leaves. Gold may, in fact, be beaten into a leaf not more than the 282,000th part of an inch in thickness, and one grain is made to cover 56¾ square inches; this truly wonderful effect is produced by beating. Silver, platinum, or copper may be reduced to a thin sheet in the same manner. The purest gold is employed in the manufacture of leaf, for any alloy hardens it, and renders it less malleable. In the production of the leaf there are four processes: casting, forging, lamination, and beating. It is hardly worth while to give the long process which the leaf is taken through, but I may say here that an ounce may be hammered so as to cover one hundred and sixty square feet; but the waste in this case, from the number of broken leaves, and the increase and nicety of the labor, makes this an unprofitable refinement. After the last beating, the leaves are placed in small books of soft paper, each sheet of paper being previously ruled with red chalk, to prevent the gold leaf from adhering to it. In this shape it is brought into the market. Silver, copper and

platinum leaf is made in the same manner; but different manufactories slightly modify the process, as will be found by consulting any work on the subject.

TO WRITE ON METALS.

You can write or mark on any metal by covering the surface with beeswax, then take a sharp instrument and write or letter the work by cleaning out the letters; then apply the acids with a feather, being careful not to get any acid on your hands; fill the letters well, and let it stand five or ten minutes, according to the depth required; then wash off with water, and when dry apply a little oil. Nitric acid will cut it, or nitric and muriatic acid will cut gold or silver; and you can have gold or silver letters with but little cost.

WASHING COLORS.

Colors that have grit in them, can be made very fine by washing them. Take a pail of soft water, stir the colors thoroughly, and wash it from one bucket to another; the first washing to stand but two minutes, in order for the grit to settle, and in the second wash to stand four minutes, and in the third to stand some

hours, until all of the color settles at the bottom, to be dried after it is poured off; the last water you will find the color entirely free from grit

TO TAKE INK SPOTS OUT OF LIGHT FURNITURE.

Apply spirits of salt with a rag until the spots disappear, and immediately wash with clear water; or, to ½ pint of soft water, put 1 oz. of oxalic acid, and ½ oz. of butter of antimony; shake well, and when well dissolved it is admirable in taking out spots on light woods or furniture.

TO CLEAN PICTURES

Having taken the picture out of the frame, take a clean towel, make it quite wet, and lay it on the face of your picture, sprinkling it from time to time with clear, soft water; let it remain wet for two or three days; then take the cloth off, and renew it with a fresh one, after wiping the picture with a wet sponge; repeat the process until you find the dirt thoroughly soaked out of the picture, then wash it well with a sponge, and when dry rub it well with a little clear boiled oil, and it will revive and give it a clear appearance.

Drawing is the soul of painting; perseverance is the road to elegance; cleanliness is the beauty of a job. Occupy all your leisure hours if you wish to succeed; firmness and decision will be sure to win. Remember, if you excel you will surely prosper.

TO CLEAN SIGN WORK OFF THAT HAS BEEN SMALTED OR CRACKED.

Take a strong solution of potash or concentrated lye, and keep it soaked well three or four hours, and when it is cut so as to be scraped, use a scraper of iron; scrape thoroughly, and wash off with clear, cold water four or five times, so as to remove all the alkali. This will remove paint from frosted or painted windows. Another mode of taking paint off cracked work is to take a hot iron and run it ever the work until it is loose, then scrape off clean, and sand off smooth. It requires two persons to work this last.

DRYING QUALITIES OF COLORS.

Whites all dry well.
Chrome yellow dries but tolerably well.
Ochres dry medium.
Light red dries quite well.

Browns dry well.
Metallic paints dry very well.
Vermilion dries slowly.
Lakes dry very slow.
English or vermilion red dries very well.
Ultramarine blue is a medium drier.
Smalts dry quickly and hard.
Raw sienna dries poorly.
Burnt sienna dries well.
Burnt umber dries very fast.
Raw umber dries well.
Asphaltum dries in oil very slow.
Drop black dries well.
Ivory black dries very slow.
Lamp-black is hard to dry, but burnt it dries well.

BLUE SMALTS.

Blue smalts is glass colored with cobalt blue, and is of a beautiful azure hue; it is impossible to grind it to a powder. The other colors of smalts are mostly colored sand.

CARRIAGE PAINTING.

PRIMING FOR CARRIAGES, ETC.

Take the paint skins from carriage painting —from the buckets, cups, etc., and the scrap-

ings that usually gather in a paint shop, and boil them in raw linseed oil. The best way is to boil them in a large iron pot, being very careful in boiling them; they will burn quicker than paint skins from a house painter's shop, on account of being mixed with turpentine and varnishes; in case they catch fire, it is easily extinguished by smothering with a coarse cloth or piece of carpet, throwing it over and laying a board over it; boil this three or four hours, and if you have not sufficient for your work, add a portion of white lead, and a small portion of linseed oil. For carriage painting, the skins should be from a carriage shop, for they have a strong drying portion in them; but, on the contrary, the paint skins from a house painter's shop have but very little drying qualities in them. In this priming but a small quantity of turpentine is used; it dries hard, lasts well, and sands very smooth. The painter will find this to be a very valuable priming, as well as a very great saving of material. If this is too thick, add a little oil while boiling; it is better to grind this before using it; make it moderately thin before it is used. You should see that your work is perfectly smooth before priming, and if not, sandpaper it well before laying on the priming.

Another good priming for carriage work is to take dry white lead and a little lamp-black; mix like paste, with two parts oil and one part Japan drier; grind and thin with spirits of turpentine sufficient to flow readily from the brush. This mixture will not dry as readily as the above, but you can tell when it is ready for sandpapering. In sandpapering over three or four spokes, hold your sandpaper up between the thumb and finger of the hand, and thump it with the other, and if dry it will free the sandpaper from the paint. A good way to fix the sandpaper is to take two sheets and put them together with a little glue size, just strong enough to keep them together; while drying, lay a block on them to press them together, and when dry cut them in strips to suit the work; by this method you can hold the sandpaper much firmer. The priming wants but little sandpapering when it comes from the smith shop, but you will find more or less smoky spots, which can be cleaned off by rubbing it with turpentine; this should be done, for paint will not stick on smoky work. Now your work is ready for second priming; give the work a coat of the same priming as the first coat.

TO FINISH THE GEARING

First mix some putty — take dry white lead, mix with two parts hard-drying varnish and one part Japan — then work it well by hammering it; keep it in water, and take it out only as you want to use it; putty all the largest places first, and fill all the holes perfectly flush, or a little more than full; some of the largest places will want from twenty-four to forty-eight hours to dry in. The grain of the spokes should be rubbed full of the putty, and when dry sandpaper smooth and even.

Third Coat.— For the third coat take dry white lead, and mix with equal parts of oil and Japan drier; make it thick like paste; grind fine and thin with turpentine, remembering the finer you grind the paint the better, and the less sandpapering you will have to do.

Fourth Coat.— For the fourth coat you will mix two parts Japan and one part oil.

Fifth Coat.— For the fifth coat mix two parts Japan and one part hard-drying varnish. Now the gearing is ready for sandpapering, and when sandpapering in small places, take a piece of wood and wind the sandpaper around it; by this means you can get in the small places very readily.

MIXING COLORS FOR GEARING.

From Black to White, or any other Color you desire.—Mix with Japan, like paste, grind, and thin with turpentine; put in one tablespoonful of oil to a pint of color after it is mixed.

Second Coat.— Put the varnish in the place of the oil, the same quantity.

Third Coat.—Mix two parts varnish and one part Japan; mix thick, grind, and thin with turpentine. Always make the color thin enough to flow from the brush readily, and flow down smoothly; grind very fine.

Rubbing.—Now proceed to rub the gearing nice and smooth for the varnish coating. To clean the gearing ready for varnishing, take a damp sponge and go over the work, and then with chamois skin. Now the work is ready for varnishing; use a very fine bristle brush; lay on the varnish heavy, but be careful it does not run, or that would spoil the beauty of the job. In varnishing, use a firm hand, and pass quickly over the work, for there is no beauty in making a slow, dragging job.

RUBBING THE VARNISH.

When dry, take some ground pumice stone and a woolen cloth, and cut down the work

with water and a sponge to keep it wet while rubbing; rub lightly, and be careful not to cut through the varnish.

STRIPING THE GEARING.

The gearing is now ready for striping. In the first place, the colors can not be ground too fine for striping; to mix the striping colors, use raw oil three parts, and one part turpentine; for drying use a portion of sugar of lead, and in dark colors use Japan varnish or boiled oil, but the sugar of lead is best for striping, especially for fine lining.

To make a very fine blue, take one part of Prussian blue and six parts of white lead, mixed with raw oil, turpentine, and sugar of lead, as directed above; when dry, clear ultramarine blue in the same way, and glaze the other with it.

For a ground for lake or carmine, use vermilion red, or if you desire it darker, use a small portion of burnt umber with the vermillion, and you can put on one more coat of the lake or carmine; it depends on how rich a color you fancy. Color for fine lines is much better mixed with raw than boiled oil.

Now the gearing is ready to clean for the last coat of varnish; be careful to get it clean

and free from dust, and see that the room is free from dust. For finishing, the English Waring coach-body varnish is much preferable to any other, and far more durable.

FOR CARRIAGE BODY PAINTING.

You will now take the body from the wood shop, and heat some boiled oil in a tin or copper dish; put the oil on the body while hot; the body should be free from dust or glue spots before oiling. Apply the oil with a rag or a stiff brush; then the body should stand four days, or a week is better; now give the body a priming coat, mixed with four parts raw oil, one part Japan drier, with white lead and a small quantity of black; add one oz. sugar of lead to the pound of white lead; mix thick as paste, grind, and thin with turpentine; this coat will require four days to dry; then sand with fine sandpaper; then give it another coat of the same paint, with a little more drier in it, and when this coat is dry, mix some putty with white lead and hard-drying varnish, work it fine with a hammer by pounding it thoroughly; then putty up every deficiency with a strong putty knife, and press it down thoroughly, so as to fill every defect in the work; for this the putty should be thin,

so as to work readily, and let it lie two or three days, then sand the work down smoothly and evenly. Now your work is ready for the ruff-stuffing.

A RUFF-STUFFING FOR CARRIAGES.

Take 7 parts of yellow ochre, 1 part white lead, 4 parts good drying varnish, 1 part good Japan drier; then take one-fifteenth as much raw oil as you have of varnish and Japan together; this should be stirred and ground through the mill, not too fine; reduce it with turpentine, so it will work readily under the brush; it will take each coat four days to dry; put coats enough on to make it level, without rubbing to the priming.

TO RUB DOWN A CARRIAGE BODY.

First saw your pumice stone so that it will have one level side, using plenty of water; then rub down the panel; wash off the work with a sponge, and wipe with a chamois skin; be careful to keep the body well wet while rubbing, to prevent scratching. Rub the parts perfectly smooth, and when you find the brush marks rubbed out, it is, as a general thing, rubbed sufficiently. If the pumice stone gums up, it is not dry enough; and if, by mistake,

you should rub through the paint and wet the wood, so as to raise the grain, when it is dry rub off the raised spot with sandpaper, and cover the spot with ruff-stuffing; when dry, use a little linseed oil in the place of water; rub off smoothly with pumice stone, which will not raise the grain of the wood; then wipe the oil off with a cloth, dust the body off clean, and it is ready for the color. The irons should have the same as the filling or the gearing; when the irons are sandpapered the body is ready for the color.

COLORING CARRIAGE BODIES.

Grind the colors fine, and keep all dust from them while drying; use a camel or sable hair brush, about two or three inches wide, and mind that the colors are thin enough, so as not to leave brush marks or destroy the level surface; run the brush lively, to prevent showing laps; when it is dry enough for the second coat, rub it down with curled hair, or haircloth, so that it takes off all the specks, and to flatten the brush marks so as to be hardly perceptible. One more coat in the same way, and it is ready for varnishing; for an extra job, put on more coats of color, and rub off the brush marks with a little pulverized rotten-

stone, with a piece of cloth for the purpose; when you have it rubbed smooth, wash clean with a sponge and a little soft water. Some painters prefer to ornament on the dead color, but the best way is to ornament on the first coat of varnish; the first varnish used is the best American rubbing varnish; this varnish looks well after it is rubbed, but it is not so durable as that which rubs more toughly; you can not be too careful in keeping the body clean while varnishing, and the brush and room free from dirt and dust. The room should be kept warm; it would be well to have a thermometer to tell when it is warm enough to be suitable for varnishing; it should stand 75 or 80 degrees above zero. Use a sable hair brush; some painters choose the bristle brush, but I give the sable the preference in all cases, they spread the paint and varnish more evenly and more readily. The quicker the varnish is put on the better, and the nicer it will flow; sometimes the work will crawl or creep; when troubled by this, rub off your work with a woolen cloth thoroughly, and if it still crawls, dampen the cloth the least bit with water.

A PROCESS FOR ORNAMENTING CARRIAGES.

First take some tissue paper, oil it with linseed oil; when it is dry, select the ornament you wish to paint on the panel; lay the paper over it, and mark the outlines of the ornament with a lead pencil, and the shadows also; then take it off and lay it on a piece of cloth; then prick the outlines of the design, turn it on the panel, and place it where you want it; then take a thin piece of muslin and make a pouncing ball, by putting whiting in it, and pounce on the design; lift off the ornament, and you will have the impression on the work.

I will give you another process, I think this is best; the idea is to get a fine impression, and therefore I think this is best, for you can take the ornament, or any figure of any design, either on print or drawing; if on print, for instance, animals or figures, etc., when the work is dark, pulverize some chalk, and rub into the back of the design; then place it in the required position, sharpen a hard lead pencil, trace the design, and it will leave a beautiful impression; after rubbing on the chalk, take a cloth, before using it, and rub over the chalk, so there will not be too much on; for light work, use umber instead of chalk; the

ornament that you draw can be used this way as well.

To color or gild in the ornament, take a little quick, hard-drying coach varnish, and lay in the ornament; when it is of the right tack, lay on the gold leaf. It is best to size in the ornament with a small sable or camel hair pencil; it is customary to rub a small portion of chrome yellow with the gold size, and if the size dries too fast, use a very small quantity of boiled oil; after laying the gold, press it down with a piece of cotton, or a softener made on purpose, also to dust off the surplus gold; now shade up the gold leaf; a very good shade on gold is asphaltum, which gives a very nice appearance, it being transparent; any transparent colors can be used for this purpose. For coloring the ornaments, take one of the modes of getting an impression, and color to suit your fancy, using bright colors. For striping and ornamenting, use the tube colors, they being much finer and having more body, your work will look much handsomer; use as a drier in striping, sugar of lead; and in ornamenting, a little quick-drying varnish.

TO RUB DOWN THE VARNISH.

Now proceed to rub down the first coat of varnish; take some woolen cloth, cut it in strips one inch and a half wide, and wind it tight until it is two or three inches wide; wind it so that the edges are even on one end, then drive a tack in the end to hold it; this is used for rubbing the varnish level. Now take some pulverized pumice stone and soft water; mix very fine, so there is no grit in it to scratch the work; when you get the brush marks rubbed off, take a woolen cloth about three inches square, and some very fine pumice stone, and rub the scratches off the ornamenting; then wash off the body in two or three waters with a sponge; then take the chamois leather, wash it out clean, and wring it dry; then rub the body thoroughly, to take off all the specks.

TO CLEAN VARNISH BRUSHES.

Take a cup of turpentine and your pallet-knife, wipe the brush across the edge of the knife, and continue until you think the brush is clean: then take a cup of varnish that is used for ordinary purposes, and wipe the brush through it for a few minutes, taking out the

turpentine; then take a clean varnish cup, and proceed to varnish the work; if any varnish should be left, drain it in a cup used for common work. While varnishing, be careful to raise as little dust as possible, and keep the room free from dust by sprinkling it before you commence varnishing, and keep the floor damp while varnishing; the room should be kept warm from twelve to fifteen hours after varnishing; the rubbing varnish should be put on thin and light; thin with turpentine if too thick; it should be so as to flow easily under the brush. There is no regular number of coats to be put on a carriage body; enough should be put on so that the last rubbing coat will rub level and not rub through; be careful that each coat is dry before putting on another. There is no set time for varnish to dry; some dry much faster than others.

THE FINISHING COAT OF VARNISH.

More care should be taken about dust in this coat than in any of the preceding ones, for in the other coats you have the advantage of rubbing, but in the last, unless the work is polished, it is not touched again; but if, as usual, a flowing coat is used to finish, and the dust is allowed to settle in the work, it spoils

the job, for nothing looks worse than specks in work. It is well to have a varnishing shirt, to slip on so as to avoid the dust from your clothes; in this instance you can not be too particular in your work. For the last coat, the best English coach-body Waring varnish should be used. It helps varnish to harden to wash it off in clean, clear soft water; it would be well to wash two or three times with cold water.

Carriage painting lasts much better if dried in the sun, if the sun is not too hot for it, so as to blister the varnish; the varnish is not so apt to blister when running as when fresh done.

Omnibuses and coach bodies are painted and finished in the same way as carriage painting.

ORNAMENTING.

In the first place, get up the design or patterns, which should be very heavy, upon good paper; when the design is drawn and shaded with a lead pencil (or Indian ink can be used), then lay a coat or a woolen cloth down, and prick the outlines and all the heaviest lines through the ornament; then take a chalk or whiting pumbail, put the pattern in the place where you desire it, and pounce in the impres-

sion, which gives a nice outline to follow; then color-in the ornament with any colors you desire to finish with; lay this coat of the ornament in with the paint, quite thin; mix with hard drying varnish, and the least bit of oil; thin with turpentine; this consists of the dead or flat coating, for by giving the ornament two coats, the colors can be worked up much better, and the shading done nicer, also the colors will be blended more evenly, and the light colors will be clearer.

TO GILD IN BUSS ORNAMENTS.

Take good drying varnish, and a very small quantity of boiled oil, say one sixth part oil, and the rest varnish, for the gold size; grind a small quantity of chrome yellow in the gold size; cut in the ornament with this, and when it gets the right tack, lay on the gold leaf, press down the gold, and rub off with a piece of cotton that is free from dirt, as the least dirt will scratch the gold; shade on the gold with asphaltum or other transparent colors; often there is a shade on the under part of the gold, so as to throw out the ornament; this shade is usually dark.

FANCY BAR WORK FOR CARRIAGES, ETC.

In oval centers and parts of carriages where you wish to run fancy bar work on black, brown, lake — in fact, all dark colors — first run a bright vermillion large stripe, and a fine line by the side of the large one, and striping across in the same manner, form diamond squares; when perfectly dry, glaze over the bar work with scarlet, carmine, or drop lake, mixing it with one half varnish and a very small portion of oil; thin with turpentine, using sufficient dryer, if the varnish dries slowly; this, when finished properly, gives a very clear, deep, transparent color.

PRICE LIST FOR CARRIAGE PAINTING.

Open Buggy	$25 00
Top "	25 00
Phæton	25 00
Democrat	25 00
Slide Seat Extension Top	35 00
Rockaway	50 00
Clarence Coach	90 00
Omnibus	60 00

PRICES OF PAINTING AND FURNISHING STOCK.

Open Buggy	$31 00
Top "	31 00
Democrat	31 00

Phæton	$31 50
Slide Seat Extension Top	44 00
Clarence Coach	110 00
Omnibus	$100.00 or 75 00

REPAINTING OLD WORK

Open and Top Buggies,	from	$15 00 to $20 00
Phæton,	"	15 00 to 23 00
Democrat,	"	15 00 to 20 00
Slide, Extension Top	"	30 00 to 40 00
Rockaway,	"	40 00 to 50 00
Clarence Coach	"	70 00 to 80 00

The above prices are for a first class finish.

PRICES OF SLEIGH OR CUTTER PAINTING.

2 Horse cutter extra	from	$30 00 to $60 00
1 " " "	"	20 00 to 35 00
2 " " common	"	16 00 to 30 00
1 " " "	"	12 00 to 20 00
1 Horse, common, with square bed and seat	"	10 00 to 15 00

This sleigh scale includes the material and work.

BRUSHES AND PAINTERS' TOOLS.

In choosing brushes, the painter should be careful to choose those that are best adapted to the kind of work intended to be done; for instance, for heavy work, the painter should choose a large, round brush of the best quality, for there is nothing saved by using an inferior brush; let your brushes be chosen according

to the amount of surface to cover; on outside work use a large 8.0 brush, and in varnishing use a large varnish brush; on doors, wainscoting, and all small work, a medium size varnish brush is best; for painting fence or lattice work, use a 3 or 4.0 brush; for chair, carriage, wagon, and blinds, use a medium flat varnish brush. In doing house work the painter should always have with him a large paint brush, a sash tool, duster, and a putty knife; in order to do good work these tools are indispensable; there are a great variety of brushes in use; some varnish with a fine sable on very nice work; at the present time there are some very fine brushes for varnishing made in metalic wrappers, which are very good, having the best and finest bristles; there are the fitches, a small, flat brush, and well adapted to various kinds of work, and the round artist pencil or brush of different sizes, with choice bristles, which are used more or less in fresco and scenery painting; there is a flat brush of different sizes that is used for graining in distemper, and also can be used in other work. I have seen painters use these brushes in varnish, but a good job of varnishing can not be done with them; there are brushes called over-grainers; these are very thin, made and bound in

tin; these brushes often require to be cut down in the hair; you should have three of these for graining, one without cutting, the second half cut, and the third cut down to one fourth of the hair, and by these graining can be done successfully. There are brushes made flat of camel hair, from one to two inches; these are used for various kinds of work; they work well for filling letters, and are used for laying on the water size for glass gilding, and besides, there is a round camel hair brush that is admirably adapted for filling letters and large ornaments, the color flowing very evenly from them; they are about half an inch through, as a general thing, and bound in tin; there is a softener, or gold duster made with four or five split swan quills; it is one inch through, and about three-fourths of an inch long in the hair; it is admirably adapted to use in laying gold leaf; then there are the striping pencils of various sizes and lengths, both of sable and of camel hair; brush or quill pencils for lettering are shorter, and average from 1¼ inches to one-half inch; some camel hair pencils are very good, but as a general thing they can not be relied upon; sable is the favorite pencil of the sign writer and ornamenter. In choosing these pencils, be careful

to see if they are not cut off on the point, for if they are, they are spoiled, and are to be discarded, for no pencil will work with the fine natural silk point cut, and the painter should be very careful to notice whether the quill is well filled with hair; if it is loose, the pencil will have no spring, and therefore is unfit for use; there is a large pencil made for wagon ornamenting, which is put up in metallic wrappers, and is very good for that purpose, as wagon ornamenting is done off hand, and not worked up as 'bus or sleigh work is; there is a brush called the softener, that should go with the artist kit used for blending colors; it is a round brush made of badger hair; also the grainer's blender, that is made of badger's hair; this brush or blender is from 1½ to 5 inches in width, and varies in the length of the hair from 2½ inches to 4 inches; these brushes are very costly that have badger hair in them. Last but not least is the calcimining brush: this is made of the best and longest hog bristles; it is made with a handle about sixteen inches long, and the hair at least six inches long; there are three sizes of these brushes, the middle size being preferable; they are usually six to seven inches wide; they are a very fine

brush; fresco painters use them; also scenic artists, for painting all their plain work.

CARE OF BRUSHES.

The calcimine brushes should be washed thoroughly when the job is finished, and not left to dry with color in them, and hung up; by these precautions the hair will remain straight, and they will also keep their spring; all brushes that are used in water or distemper color, should be washed and rinsed clear before laying away; also artist's pencils that are used in oil should be washed clean with soft water and soap until they are thoroughly cleansed, but by all means do not use hot water, for hot water takes the spring from the brush. Small lettering pencils and heavy striping brushes may be kept clean by washing them out in turpentine or benzole; lay them in sweet oil, in a dish prepared, so the brushes lay flat, to keep the points from curling; if you wish to move or carry them, clean the sweet oil out, and there is no danger of their spoiling by drying out. For fine stripes, clean them with turpentine; take equal parts of tallow and lard, rub in them, and stick them on a piece of glass, straightening them out per-

fectly straight, and by this mode the pencils for fine lining will always be in order. In the care of the large paint brushes, all that is required is to have a tub, cut it down, and put in enough water to cover the bristles, laying them in carefully so as to not to jam up the bristles, and lay them flat, that is the flat way they are worn. Some keep their brushes in a long trough, with nails on both sides, and by boring a hole in the handles, they hang them up; this is a very good way.

Brushes should never stand in the color, for a brush softens more or less, and loses the spring, which ruins it. The painter never gains any thing by being careless with his brushes or tools; a brush in soon spoiled by leaving it out drying, and it is not fit for use. The varnish brush is the hardest one to keep in order; a varnish brush should be taken great care of, for a gummed brush will spoil any work that it is put on, always leaving specks in the work. For house work, or work that is not used much, such as doors, frames, etc., you can keep the brush in oil; but for other work, such as chairs, furniture, carriages, and in fact all work that is used a great deal, as setting any thing on to, the brush should be kept out of oil; it can be kept in turpentine by

being very careful. For varnishing church pews or hall seats, oil should be kept from the brush and from the varnish. I have been keeping a brush in a large, open-mouth bottle, with varnish enough to cover the bristles, and taken a piece of leather with a hole cut in it to receive the handle and to fit close over the mouth of the bottle.

In wearing paint brushes, especially large round brushes, it is necessary to learn to wear them flat, by working them on two sides only; some blaze the handle, which is a very bad plan. The best way to break a brush in, as it is termed, is to observe how you work the brush when you first commenced, and if you have been painting in oil color in the evening, when quitting work lay the brush on a board flat the way you wish to break it in, and by one or two nights', and a couple of days' work, you can manage it.

WRAPPING OR BINDING BRUSHES.

When brushes are new, the painter usually wraps them. There are several modes of wrapping brushes, but there is one thing I would impress on your minds, that is, not to bind the brush too tight, for several reasons;

first, if bound too tight, the brush is apt to twist in the hair; second, a brush that is bound too tight will burst by swelling while kept in water; and third, but not least, the wrapper keeps working down, and bulges between the wrapping and the main wrapping of the brush. In wrapping a brush, some tie the bridle or wrapping around the handle of the brush, and some bridle by tacking it in the main stock of the brush — that is, draw it over the main binding, and tack it in the hair; but my way is to loop from the end of the bristles, draw the ends back, and simply tie them together; the spring of the brush will keep the wrapper up, if not too tight. Observe this instruction on brushes, and you will have no trouble.

In running the painting business, I find it positively necessary to keep a paint stone, and large and small pallet knife or spatula; some painters seem to get along without these, but I never could. It matters not whether you have a paint mill or not, the stone and pallet knife are always very useful. You should keep a good paint mill in your business; you will find a variety of them. There are various other tools used in this business; it is probably not necessary to explain their separate uses. I

shall name some of them: first, ladders, four or five lengths; then the calcimining scaffolding ladders, these are used for calcimining ceilings, awnings, etc.; swing staging on different plans, used for painting brick blocks; step ladders, it is well to have four or five different sizes of these, being very handy on inside work, in papering, etc.; paper-hanging boards, these are made of different lengths and in different ways; the best way is to take two boards, from nine to twelve feet long, and half inch stuff, and put them together with long hinges, so that they close up, and can be carried under the arm and in the wind, which is hard to do when the board is whole and the wind blows the board; it should have a piece jointed on the ends, to keep it from splitting; and a pair of light trussels for painting blinds, etc.

In lettering, you should have several straight-edges, and a couple of squares; a compass, and a set of drawing tools; a very thin straight-edge, one and a half inches wide, from three to four feet long, for scenery and fresco painting; also a resting stick, and I have found, in practical painting, a pallet board very handy; an easel for painting, and others for glazing, made heavier; a pair of frames or

stretchers, for painting window shades on; and last, but not least, two or three strainers, made of perforated tin, one large for straining white and colors, and one small for straining in cups and small articles.

NUMBER OF LIGHTS PER BOX OF FIFTY FEET.

SIZE.	LIGHTS.	SIZE.	LIGHTS.
6 by 8,	150	10 by 18,	40
6 " 10,	120	10 " 19,	38
6 " 12,	100	10 " 20,	36
7 " 9,	114	10 " 21,	34
7 " 14,	73	10 " 22,	33
8 " 10,	90	10 " 24,	30
8 " 12,	75	10 " 26,	28
8 " 13,	69	10 " 30,	24
8 " 14,	64	10 " 40,	18
8 " 15,	60	10 " 46,	16
8 " 16,	56	10 " 50,	14
8 " 18,	50	11 " 12,	55
8 " 20,	45	11 " 14,	47
9 " 11,	72	11 " 15,	44
9 " 12,	66	11 " 16,	41
9 " 13,	61	11 " 17,	38
9 " 14,	57	11 " 18,	36
9 " 15,	53	11 " 19,	34
9 " 16,	50	11 " 20,	33
9 " 17,	47	11 " 21,	31
9 " 18,	44	11 " 22,	30
9 " 20,	40	11 " 24,	27
9 " 22,	36	11 " 30,	22
10 " 12,	60	11 " 40,	16
10 " 13,	55	11 " 50,	13
10 " 14,	51	12 " 12,	50
10 " 15,	48	12 " 13,	46
10 " 16,	45	12 " 14,	43
10 " 17,	42	12 " 15,	40

SIZE.	LIGHTS.	SIZE.	LIGHTS.
12 by 16,	37	15 by 15,	32
12 " 17,	35	15 " 16,	30
12 " 18,	33	15 " 18,	27
12 " 19,	32	15 " 20,	24
12 " 20,	30	15 " 22,	22
12 " 21,	29	15 " 24,	20
12 " 22,	27	15 " 26,	18
12 " 24,	25	15 " 28,	17
12 " 26,	23	15 " 30,	16
12 " 28,	21	15 " 32,	15
12 " 30,	20	15 " 34,	14
12 " 36,	17	15 " 36,	13
12 " 40,	15	15 " 40,	12
12 " 50,	12	15 " 45,	11
13 " 15,	37	15 " 48,	10
13 " 16,	35	15 " 50,	10
13 " 17,	33	16 " 16,	28
13 " 18,	31	16 " 18,	25
13 " 20,	28	16 " 20,	22
13 " 22,	25	16 " 22,	20
13 " 24,	23	16 " 24,	19
13 " 26,	21	16 " 26,	17
13 " 30,	18	16 " 28,	16
13 " 36,	15	16 " 30,	15
13 " 40,	14	16 " 32,	14
14 " 14,	37	16 " 34,	13
14 " 16,	32	16 " 36,	12
14 " 17,	30	16 " 38,	12
14 " 18,	29	16 " 40,	11
14 " 20,	26	16 " 42,	11
14 " 21,	24	16 " 44,	10
14 " 22,	23	16 " 46,	10
14 " 24,	21	16 " 48,	9
14 " 26,	20	16 " 50,	9
14 " 28,	18	17 " 17,	25
14 " 30,	17	17 " 18,	24
14 " 36,	14	17 " 20,	21
14 " 40,	13	17 " 22,	19
14 " 44,	12	17 " 24,	17
14 " 50,	10	17 " 26,	16

SIZE.	LIGHTS.	SIZE.	LIGHTS.
17 by 28,	15	20 by 20,	18
17 " 30,	14	20 " 22,	16
17 " 32,	13	20 " 24,	15
17 " 34,	12	20 " 26,	14
17 " 36,	12	20 " 28,	13
17 " 40,	11	20 " 30,	12
17 " 44,	10	20 " 32,	11
18 " 18,	22	20 " 34,	11
18 " 20,	20	20 " 36,	10
18 " 22,	18	20 " 38,	9
18 " 24,	17	20 " 40,	9
18 " 26,	15	20 " 42,	9
18 " 28,	14	20 " 44,	8
18 " 30,	13	20 " 46,	8
18 " 32,	12	20 " 48,	7
18 " 34,	12	20 " 50,	7
18 " 36,	11	20 " 52,	7
18 " 38,	11	20 " 54,	7
18 " 40,	10	20 " 56,	6
18 " 42,	10	20 " 58,	6
18 " 44,	9	20 " 60,	6
18 " 46,	9	21 " 22,	16
18 " 48,	8	21 " 24,	14
18 " 50,	8	21 " 26,	13
18 " 52,	8	21 " 28,	12
18 " 54,	7	21 " 30,	11
18 " 56,	7	21 " 32,	11
18 " 58,	7	21 " 34,	10
18 " 60,	7	21 " 36,	10
19 " 20,	19	21 " 40,	9
19 " 22,	17	21 " 45,	8
19 " 24,	16	21 " 50,	7
19 " 26,	15	21 " 54,	6
19 " 28,	14	21 " 60,	6
19 " 30,	13	22 " 22,	15
19 " 32,	12	22 " 24,	14
19 " 34,	11	22 " 26,	13
19 " 36,	11	22 " 28,	12
19 " 38,	10	22 " 30,	11
19 " 40,	9	22 " 32,	10

SIZE.	LIGHTS.	SIZE.	LIGHTS.
22 by 34,	10	24 by 52,	6
22 " 36,	9	24 " 54,	6
22 " 38,	9	24 " 56,	5
22 " 40,	8	24 " 58,	5
22 " 42,	8	24 " 60,	5
22 " 44,	7	25 " 25,	12
22 " 46,	7	25 " 26,	11
22 " 48,	7	25 " 28,	10
22 " 50,	7	25 " 30,	10
22 " 52,	6	25 " 32,	9
22 " 54,	6	25 " 34,	8
22 " 56,	6	25 " 36,	8
22 " 58,	6	25 " 38,	8
22 " 60,	5	25 " 40,	7
23 " 23,	14	25 " 42,	7
23 " 26,	12	25 " 44,	7
23 " 28,	11	25 " 46,	6
23 " 30,	10	25 " 48,	6
23 " 33,	9	25 " 50,	6
23 " 36,	9	25 " 52,	6
22 " 38,	8	25 " 54,	5
23 " 40,	8	25 " 56,	5
23 " 44,	7	25 " 58,	5
23 " 50,	6	25 " 60,	5
23 " 54,	5	26 " 26,	10
23 " 60,	5	26 " 28,	11
24 " 24,	12	26 " 30,	9
24 " 26,	12	26 " 32,	9
24 " 28,	11	26 " 34,	8
24 " 30,	10	26 " 36,	8
24 " 32,	9	26 " 38,	7
24 " 34,	9	26 " 40,	7
24 " 36,	8	26 " 42,	7
24 " 38,	8	26 " 44,	6
24 " 40,	7	26 " 46,	6
24 " 42,	7	26 " 48,	6
24 " 44,	7	26 " 50,	6
24 " 46,	7	26 " 52,	5
24 " 48,	6	26 " 54,	5
24 " 50,	6	26 " 56,	5

SIZE.	LIGHTS.	SIZE.	LIGHTS.
26 by 58,	5	32 by 48,	5
26 " 60,	5	32 " 50,	5
28 " 28,	9	32 " 52,	4
28 " 30,	9	32 " 54,	4
28 " 32,	8	32 " 56,	4
28 " 34,	8	32 " 58,	4
28 " 36,	7	32 " 60,	4
28 " 40,	6	33 " 36,	6
28 " 42,	6	33 " 40,	5
28 " 44,	6	33 " 45,	5
28 " 46,	6	33 " 50,	4
28 " 48,	5	33 " 55,	4
28 " 50,	5	33 " 60,	4
28 " 52,	5	34 " 36,	6
28 " 54,	5	34 " 38,	6
28 " 56,	5	34 " 40,	5
28 " 58,	4	34 " 42,	5
28 " 60,	4	34 " 44,	5
30 " 30,	8	34 " 46,	5
30 " 34,	7	34 " 48,	4
30 " 36,	7	34 " 50,	4
30 " 38,	6	34 " 52,	4
30 " 40,	6	34 " 54,	4
30 " 42,	6	34 " 56,	4
30 " 44,	5	34 " 58,	4
30 " 46,	5	34 " 60,	3
30 " 48,	5	35 " 40,	5
30 " 50,	5	35 " 45,	5
30 " 52,	5	35 " 50,	4
30 " 54,	5	35 " 55,	4
30 " 56,	4	35 " 60,	3
30 " 58,	4	36 " 60,	5
30 " 60,	4	36 " 42,	5
32 " 34,	7	36 " 44,	5
32 " 36,	6	36 " 46,	4
32 " 38,	6	36 " 48,	4
32 " 40,	6	36 " 50,	4
32 " 42,	5	36 " 52,	4
32 " 44,	5	36 " 54,	4
32 " 46,	5	36 " 56,	4

SIZE.	LIGHTS.	SIZE.	LIGHTS.
36 by 58,	3	38 by 60,	3
36 " 60,	3	40 " 42,	4
38 " 40,	5	40 " 44,	4
38 " 44,	4	40 " 46,	4
38 " 46,	4	40 " 48,	4
38 " 48,	4	40 " 50,	4
38 " 50,	4	40 " 52,	3
38 " 52,	4	40 " 54,	3
38 " 54,	3	40 " 56,	3
38 " 56,	3	40 " 58,	3
38 " 58,	3	40 " 60,	3

PRICES OF GLASS PER BOX OF FIFTY FEET.

These prices are the standard prices of glass per box for the last three or four years, with a discount deducted; at present the discount is thirty cents, and by the help of this scale you can easily keep yourself informed in regard to prices:

Single Strength.	Price per box of 50 feet.
6 by 8,	$6 50
7 " 9,	6 50
8 " 10,	6 50
8 " 11 to 9 by 11,	7 00
9 " 12 to 10 " 12,	7 00
8 " 13 to 9 " 13,	7 00
9 " 14 to 10 " 14,	7 00
8 " 15 to 9 " 15,	7 00
9 " 15 to 10 " 15,	7 00
9 " 16 to 10 " 16,	8 00
11 " 14 to 11 " 15,	8 00
11 " 15 to 12 " 14,	8 00
9 " 17 to 10 " 17,	8 00

Single Strength.	Price per box of 50 feet.
9 by 18 to 10 by 18,	$8 00
11 " 16 to 11 " 17,	8 00
12 " 15 to 12 " 16,	8 00
11 " 18 to 9 " 19,	8 00
12 " 17 to 12 " 18,	8 00
10 " 19 to 12 " 19,	8 50
8 " 20 to 10 " 20,	8 50
11 " 20 to 12 " 20,	8 50
10 " 21 to 10 " 22,	8 50
11 " 21 to 11 " 22,	8 50
14 " 16 to 14 " 18,	8 50
13 " 19 to 13 " 20,	8 50
14 " 19 to 14 " 20,	8 50
12 " 21 to 14 " 21,	8 50
12 " 22 to 14 " 22,	8 50
10 " 24 to 12 " 24,	8 50
13 " 24 to 14 " 24,	8 50
15 " 20 to 15 " 22,	8 50
16 " 20 to 17 " 20,	8 50
16 " 22 to 16 " 24,	8 50
18 " 20 to 18 " 22,	10 50
17 " 24 to 18 " 24,	10 50
10 " 26 to 16 " 26,	10 50
10 " 28 to 12 " 28,	10 50
18 " 26 to 16 " 26,	10 50
18 " 28 to 20 " 28,	10 50
19 " 24 to 20 " 24,	10 50
14 " 26 to 14 " 28,	10 50
10 " 30 to 22 " 24,	10 50
22 " 26 to 22 " 28,	12 00
24 " 28 to 20 " 30,	12 00
22 " 30 to 24 " 30,	12 00
10 " 32 to 24 " 36,	13 00
24 " 37 to 24 " 38,	15 00
26 " 28 to 28 " 38,	15 00
30 " 32 to 30 " 36,	15 00
10 " 40 to 20 " 40,	15 00
24 " 40 to 30 " 40,	15 00
20 " 41 to 30 " 41,	15 00
20 " 42 to 28 " 42,	15 00

Single Strength.	Price per box of 50 feet.
30 by 42 to 32 by 42,	15 00
20 " 44 to 26 " 44,	15 00
28 " 44 to 30 " 44,	15 00
10 " 45 to 20 " 45,	16 00
32 " 44 to 30 " 45,	16 00

For double strength, double the price of the above.

HANDLING AND CUTTING GLASS.

In handling glass there is considerable sleight; in the first place, you should be careful how you take hold of the glass, and especially large glass, for often the weight of the glass will break it. Take hold of the glass so as to support it, and always carry it on the edge; if you wish to set it down, set it on the edge, and when you cut glass lay it with the hollowing side up, for it cuts best in that way. You should be careful there are no specks or large grit under the glass before cutting, for if there are, you are more apt to break it. See that the glass is level, and if not, slide paper under until it is level, then take hold of the diamond with a firm hand, and move it along smoothly, holding it firmly, so as to cut evenly and alike across the whole light; it is well to cut a couple of pieces before breaking the cut; and on very large glass you should be careful to

make a sure cut, and for fear you do not make an even cut, run the diamond alongside of your cut; and if a very large glass, turn it over and cut on the opposite side, then draw the glass to the edge of the board, and break it carefully; sometimes it is well to take the other end of the diamond and thump it carefully, to give it a start, you might thump it the whole length of the glass with success, and it often breaks in this manner. In cold and frosty weather the glass should be warmed before making the cut; it cuts better, and does not break so easily.

TO TAKE CARE OF A DIAMOND.

It is quite essential to take good care of a diamond. In the first place, if you have a good diamond, do not allow any one but yourself to use it, for two men to cut with the same diamond will surely spoil it. You should never lay it down, for if you do, some boy or man will pick it up and try it for curiosity, and may spoil it; there is another thing that I would impress on your mind, that is, never to cut in the same place a second time, for it injures the diamond, and is apt to ruin it; also, be careful not to run over other cuts with it.

You should be very careful not to draw the diamond over the edge too hard, for it is hard on a diamond. Perhaps you may ask, What diamond is best? Diamonds are of various prices, and you may get a good one, or you may not, but send for one that is worth about twelve dollars, and you will be likely to get a good one.

THE

PAINTER'S READY RECKONER

In taking house work, there is a great deal of time spent in measuring work, and many will take work without taking time to see what they can afford to do it for, and consequently do it at ruinous prices. Therefore, in order to save time, and to enable the painter to take work at fair prices, we give the ready reckoner in the painter's business, which I believe has never before been published.

A man with this reckoner can, in a very few minutes, give a decided answer to almost any job, and a correct one; and I doubt not you will find this of great value to you. I give you the size of the glass, and the whole frame which comprises the entire window; plain finish; molding finish, and pilaster with cap finish; also, outside of window on brick buildings, with cap and sill; also doors and frames, bases, floors, etc.; making it complete in

taking work. In taking a job, all that is required is to get the size of the glass, and then count the number of windows, doors, etc., and you will find but little trouble in getting the dimensions of the job, and the estimate will be correct.

The following scales give the number of yards, feet and inches in windows, doors, bases, floors, fronts, picket fencing, and a great variety of work that comes in the painter's trade:

PLAIN FINISH (INSIDE.)

Glass	8 by 10....	Window	2	Yards,	2	Feet,	96	Inches.
"	8 by 11....	"	2	"	4	"	0	"
"	8 by 12....	"	2	"	5	"	48	"
"	8 by 13....	"	2	"	6	"	96	"
"	8 by 14....	"	2	"	8	"	0	"
"	8 by 15....	"	3	"	0	"	48	"
"	8 by 16....	"	3	"	1	"	96	"
"	8 by 17....	"	3	"	3	"	0	"
"	8 by 18....	"	3	"	4	"	48	"
"	8 by 19....	"	3	"	5	"	96	"
"	8 by 20....	"	3	"	7	"	0	"

PLAIN FINISH.

Glass	9 by 12....	Window	3	Yards,	0	Feet,	0	Inches.
"	9 by 13....	"	3	"	1	"	72	"
"	9 by 14....	"	3	"	3	"	0	"
"	9 by 15....	"	3	"	4	"	72	"
"	9 by 16....	"	3	"	6	"	0	"
"	9 by 17....	"	3	"	7	"	72	"
"	9 by 18....	"	4	"	0	"	0	"
"	9 by 19....	"	4	"	1	"	72	"
"	9 by 20 ...	"	4	"	3	"	0	"

MOLDING FINISH.

Glass	9 by 12....	Window	3	Yards,	5	Feet, 72	Inches.
"	9 by 13....	"	3	"	7	" 24	"
"	9 by 14....	"	3	"	8	" 120	"
"	9 by 15....	"	4	"	1	" 72	"
"	9 by 16....	"	4	"	3	" 24	"
"	9 by 17....	"	4	"	4	" 120	"
"	9 by 18....	"	4	"	6	" 72	"
"	9 by 19....	"	4	"	8	" 24	"
"	9 by 20....	"	5	"	0	" 120	"

PILASTER OR CAP FINISH.

Glass	9 by 12	Window	4	Yards,	0	Feet, 36	Inches.
"	9 by 13....	"	4	"	1	" 132	"
"	9 by 14....	"	4	"	3	" 84	"
"	9 by 15....	"	4	"	5	" 36	"
"	9 by 16....	"	4	"	6	" 132	"
"	9 by 17....	"	4	"	8	" 84	"
"	9 by 18....	"	5	"	1	" 36	"
"	9 by 19....	"	5	"	2	" 132	"
"	9 by 20....	"	5	"	4	" 84	"

PLAIN FINISH.

Glass	10 by 12...	Window	3	Yards,	1	Foot, 84	Inches.
"	10 by 13...	"	3	"	3	" 12	"
"	10 by 14...	"	3	"	4	" 84	"
"	10 by 15...	"	3	"	6	" 12	"
"	10 by 16...	"	3	"	7	" 84	"
"	10 by 17...	"	4	"	0	" 12	"
"	10 by 18...	"	4	"	1	" 84	"
"	10 by 19...	"	4	"	3	" 12	"
"	10 by 20...	"	4	"	4	" 84	"

MOLDING FINISH.

Glass	10 by 12...	Window	3	Yards,	7	Feet, 18	Inches.
"	10 by 13...	"	3	"	8	" 114	"
"	10 by 14...	"	4	"	1	" 66	"
"	10 by 15...	"	4	"	3	" 18	"
"	10 by 16...	"	4	"	4	" 114	"
"	10 by 17...	"	4	"	6	" 66	"

Glass	10 by 18...	Window	4	Yards,	8	Feet,	18	Inches.
"	10 by 19...	"	5	"	0	"	114	"
"	10 by 20...	"	5	"	2	"	66	"

PILASTER OR CAP FINISH.

Glass	10 by 12....	Window	4	Yards,	2	Feet,	9	Inches.
"	10 by 13....	"	4	"	3	"	105	"
"	10 by 14....	"	4	"	5	"	57	"
"	10 by 15....	"	4	"	7	"	9	"
"	10 by 16....	"	4	"	8	"	105	"
"	10 by 17....	"	5	"	1	"	57	"
"	10 by 18....	"	5	"	3	"	9	"
"	10 by 19....	"	5	"	4	"	107	"
"	10 by 20....	"	5	"	6	"	57	"

PLAIN FINISH.

Glass	11 by 12....	Window	3	Yards,	3	Feet,	0	Inches.
"	11 by 13....	"	3	"	4	"	96	"
"	11 by 14....	"	3	"	6	"	48	"
"	11 by 15....	"	3	"	8	"	0	"
"	11 by 16....	"	4	"	0	"	96	"
"	11 by 17....	"	4	"	2	"	48	"
"	11 by 18....	"	4	"	4	"	0	"
"	11 by 19....	"	4	"	5	"	96	"
"	11 by 20....	"	4	"	7	"	48	"

MOLDING FINISH.

Glass	11 by 12..	Window	3	Yards,	8	Feet,	108	Inches.
"	11 by 13..	"	4	"	1	"	84	"
"	11 by 14..	"	4	"	3	"	60	"
"	11 by 15..	"	4	"	5	"	36	"
"	11 by 16..	"	4	"	7	"	12	"
"	11 by 17..	"	4	"	8	"	132	"
"	11 by 18..	"	5	"	1	"	108	"
"	11 by 19..	"	5	"	3	"	84	"
"	11 by 20..	"	5	"	5	"	60	"

PILASTER OR CAP FINISH.

Glass	11 by 12...	Window	4	Yards,	4	Feet,	18	Inches.
"	11 by 13...	"	4	"	5	"	102	"
"	11 by 14...	"	4	"	7	"	78	"

Glass	11 by 15...	Window	5	Yards,	0	Feet,	54	Inches.
"	11 by 16...	"	5	"	2	"	30	"
"	11 by 17...	"	5	"	4	"	6	"
"	11 by 18...	"	5	"	5	"	126	"
"	11 by 19...	"	5	"	7	"	102	"
"	11 by 20...	"	6	"	0	"	78	"

PLAIN FINISH.

Glass	12 by 12...	Window	3	Yards,	4	Feet,	72	Inches.
"	12 by 13...	"	3	"	6	"	36	"
"	12 by 14...	"	3	"	8	"	0	"
"	12 by 15...	"	4	"	0	"	108	"
"	12 by 16...	"	4	"	2	"	72	"
"	12 by 17...	"	4	"	4	"	36	"
"	12 by 18...	"	4	"	6	"	0	"
"	12 by 19...	"	4	"	7	"	108	"
"	12 by 20...	"	5	"	0	"	72	"

MOLDING FINISH.

Glass	12 by 12...	Window	4	Yards,	1	Foot,	54	Inches.
"	12 by 13...	"	4	"	2	"	66	"
"	12 by 14...	"	4	"	5	"	30	"
"	12 by 15...	"	4	"	7	"	18	"
"	12 by 16...	"	5	"	0	"	6	"
"	12 by 17...	"	5	"	1	"	126	"
"	12 by 18...	"	5	"	8	"	114	"
"	12 by 19...	"	5	"	5	"	115	"
"	12 by 20...	"	5	"	7	"	90	"

PILASTER FINISH, WITH CAP.

Glass	12 by 12...	Window	4	Yards,	5	Feet,	99	Inches
"	12 by 13...	"	4	"	6	"	111	"
"	12 by 14...	"	5	"	0	"	75	"
"	12 by 15...	"	5	"	2	"	63	"
"	12 by 16...	"	5	"	4	"	51	"
"	12 by 17...	"	5	"	6	"	27	"
"	12 by 18...	"	6	"	4	"	15	"
"	12 by 19...	"	6	"	1	"	16	"
"	12 by 20...	"	6	"	2	"	135	"

Scale to give the number of yards, feet and inches in windows on the outside of brick buildings, including the caps and sills:

Glass	9 by 12...	Window	2	Yards,	6	Feet,	54	Inches.
"	9 by 13...	"	2	"	7	"	78	"
"	9 by 14...	"	2	"	8	"	126	"
"	9 by 15...	"	3	"	1	"	18	"
"	9 by 16...	"	3	"	2	"	54	"
"	9 by 17...	"	3	"	3	"	90	"
"	9 by 18...	"	3	"	4	"	106	"
"	9 by 19...	"	3	"	6	"	18	"
"	9 by 20...	"	3	"	7	"	54	"
"	10 by 12...	"	3	"	8	"	0	"
"	10 by 13...	"	3	"	0	"	48	"
"	10 by 14...	"	3	"	1	"	8	"
"	10 by 15...	"	3	"	3	"	0	"
"	10 by 16...	"	3	"	4	"	48	"
"	10 by 17...	"	3	"	5	"	8	"
"	10 by 18...	"	3	"	7	"	0	"
"	10 by 19...	"	3	"	8	"	48	"
"	10 by 20...	"	4	"	0	"	8	"
"	11 by 12...	"	3	"	0	"	90	"
"	11 by 13...	"	3	"	2	"	6	"
"	11 by 14...	"	3	"	3	"	66	"
"	11 by 15...	"	3	"	4	"	126	"
"	11 by 16...	"	3	"	6	"	42	"
"	11 by 17...	"	3	"	7	"	102	"
"	11 by 18...	"	4	"	0	"	18	"
"	11 by 19...	"	4	"	1	"	78	"
"	11 by 20...	"	4	"	2	"	138	"
"	12 by 14...	"	3	"	5	"	36	"
"	12 by 15...	"	3	"	6	"	108	"
"	12 by 16...	"	3	"	8	"	36	"
"	12 by 17...	"	4	"	0	"	108	"
"	12 by 18...	"	4	"	2	"	36	"
"	12 by 19 ..	"	4	"	3	"	108	"
"	12 by 20...	"	4	"	5	"	36	"
"	12 by 21...	"	4	"	6	"	108	"
"	12 by 22...	"	4	"	8	"	36	"

Scale to give the number of yards, feet and inches in doors and frames of different sizes, inside; the door and frame of the following scales are figured together:

PLAIN FINISH.

Door 2 feet 8 in. by 6 feet 8 in.....3 yds., 3 feet, 60 in.
" 2 " 10 " by 6 " 10 " ....3 " 5 " 56 "
" 3 " 0 " by 7 " 0 " ....3 " 8 " 56 "

MOLDING FINISH.

Door 2 feet 8 in. by 6 feet 8 in.....3 yds., 8 feet, 33 in.
" 2 " 10 " by 6 " 10 " ....4 " 1 " 41 "
" 3 " 0 " by 7 " 0 " ....4 " 4 " 68 "

PILASTER FINISH, WITH CAP.

Door 2 feet 8 in. by 6 feet 8 in.....4 yds., 2 feet, 15 in.
" 2 " 10 " by 6 " 10 " ....4 " 4 " 59 "
" 3 " 0 " by 7 " 0 " ....4 " 7 " 86 "

This scale is for business fronts, with flange or projection of side light in doorway. The inside would be plain without the projection, and would measure plain as the plain scale for outside. The flange averages from one to two feet girth. By this, in a front of sixteen feet, there would be a gain of two feet if the projection is one foot, and if the projection is two feet the gain would be four feet; by this, the sixteen feet front would be twenty feet girth.

FRONT WITH FLANGES.

8	feet	high	by	16	feet	wide,	with	flange	..	1	ft.	16 yds.
10	"	"	by	18	"	"	"	..	1½	ft.	21 yds.	4 ft.
12	"	"	by	20	"	"	"	..	2	"	32 "	0 "

FRONT PLAIN.

8	feet	high	by	16	feet	wide,	plain	....	14	yards
10	"	"	by	28	"	"	"	....	20	"
12	"	"	by	20	"	"	"	....	26	" 6 feet.

SCALE OF BASES.

In this scale of bases of sizes and heights, the measurement gives the base solid around the room, the door sills making up for the deficiency of the doors. Bases and sub-bases measuring from six to nine inches should be called nine inches girth; and from nine to twelve, should be called one foot; if capped with another color, six inches should be added, making eighteen inches girth. In the following scale we give 6, 9 and 12 inches scale, all inches between these numbers averaging to the following number; and in measuring strips, if 2, 3 or 4 inches are measured, 6 inches girth is allowed, there being two edges to be cut in.

SCALE OF SIX-INCH BASES.

6	inches	base,	7	by	9	feet	room	.....	1	yard	7	feet.
6	"	"	8	by	12	"	"	.....	2	"	2	"
6	"	"	10	by	12	"	"	.....	2	"	4	"
6	"	"	10	by	14	"	"	.....	2	"	6	"
6	"	"	12	by	14	"	"	.....	2	"	8	"

6	inches	base,	12	by	16	feet	room	3	yards	1 foot.
6	"	"	14	by	16	"	"	3	"	3 "
6	"	"	16	by	16	"	"	3	"	5 "

SCALE OF NINE-INCH BASE.

9	inches	base,	8	by	12	feet	room	3	yards	3 feet.
9	"	"	10	by	12	"	"	3	"	6 "
9	"	"	12	by	14	"	"	4	"	3 "
9	"	"	12	by	16	"	"	4	"	6 "
9	"	"	14	by	14	"	"	4	"	6 "
9	"	"	14	by	16	"	"	5	"	0 "
9	"	"	16	by	16	"	"	5	"	3 "
9	"	"	16	by	18	"	"	5	"	6 "

SCALE OF TWELVE-INCH BASE.

12	inches	base,	10	by	12	feet	room	4	yards	8 feet.
12	"	"	12	by	12	"	"	5	"	3 "
12	"	"	12	by	14	"	"	5	"	7 "
12	"	"	12	by	16	"	"	6	"	2 "
12	"	"	14	by	14	"	"	6	"	2 "
12	"	"	14	by	16	"	"	6	"	6 "
12	"	"	16	by	16	"	"	7	"	1 "
12	"	"	16	by	18	"	"	7	"	5 "
12	"	"	16	by	20	"	"	8	"	0 "
12	"	"	18	by	20	"	"	8	"	4 "

SCALE OF FLOORS AND CEILINGS.

This scale is to give the number of yards in floors of different sizes, and will also give the sizes of ceilings of the same dimensions.

Floor	7	by	9	feet				7	yards	0 feet.
"	8	by	12	"				10	"	6 "
"	10	by	12	"				13	"	3 "
"	12	by	12	"				16	"	0 "
"	12	by	14	"				18	"	6 "
"	14	by	14	"				21	"	7 "
"	14	by	16	"				24	"	8 "
"	16	by	16	"				28	"	4 "

Floor	16	by	18	feet			25	yards	3	feet.
"	16	by	20	"			35	"	5	"
"	18	by	20	"			40	"	0	"

SCALE OF PICKET FENCING.

This scale gives the number of yards in picket fences, from ten feet up to sixty, of different heights.

Fence	2	feet	high	by	10	feet	long	6	yards	6 feet.
"	2	"	"	by	20	"	"	13	"	3 "
"	2	"	"	by	30	"	"	20	"	0 "
"	2	"	"	by	40	"	"	28	"	6 "
"	2	"	"	by	50	"	"	33	"	3 "
"	2	"	"	by	60	"	"	40	"	0 "
"	2½	"	"	by	10	"	"	8	"	3 "
"	2½	"	"	by	20	"	"	16	"	6 "
"	2½	"	"	by	30	"	"	25	"	0 "
"	2½	"	"	by	40	"	"	33	"	3 "
"	2½	"	"	by	50	"	"	41	"	6 "
"	2½	"	"	by	60	"	"	50	"	0 "
"	3	"	"	by	10	"	"	10	"	0 "
"	3	"	"	by	20	"	"	20	"	0 "
"	3	"	"	by	30	"	"	30	"	0 "
"	3	"	"	by	40	"	"	40	"	0 "
"	3	"	"	by	50	"	"	50	"	0 "
"	3	"	"	by	60	"	"	60	"	0 "
"	3½	"	"	by	10	"	"	11	"	6 "
"	3½	"	"	by	20	"	"	23	"	3 "
"	3½	"	"	by	30	"	"	35	"	0 "
"	3½	"	"	by	40	"	"	46	"	6 "
"	3½	"	"	by	50	"	"	58	"	3 "
"	3½	"	"	by	60	"	"	70	"	0 "
"	4	"	"	by	10	"	"	13	"	3 "
"	4	"	"	by	20	"	"	26	"	6 "
"	4	"	"	by	30	"	"	40	"	0 "
"	4	"	"	by	40	"	"	53	"	3 "
"	4	"	"	by	50	"	"	66	"	6 "
"	4	"	"	by	60	"	"	80	"	0 "

Fence	4½	feet	high	by	10	feet	long	15	yards	0 feet.
"	4½	"	"	by	20	"	"	30	"	0 "
"	4½	"	"	by	30	"	"	45	"	0 "
"	4½	"	"	by	40	"	"	60	"	0 "
"	4½	"	"	by	50	"	"	75	"	0 "
"	4½	"	"	by	60	"	"	90	"	0 "

To measure picket fence, measure one side and multiply by three; this gives the whole height. For instance, a fence that measures three feet girth is nine feet girth by the length, that gives all sides of the pickets.

SCALE OF VENETIAN BLINDS.

Painted with chrome green, permanent or Hampden green, one coat of lead, and two coats of green prize scale; it being useless to throw Venetian blinds into yards, I give the customary price to the different sizes by the pair:

Glass from					
9 to 10, 11 by 12	$1 75	for 3	coats,	$1 50	for 2 coats.
9 to 10, 11, 12 by 14,	2 00	" "		1 75	" "
9 to 10, 11, 12 by 16,	2 50	" "		2 00	" "
9 to 10, 11, 12 by 18,	2 75	" "		2 50	" "
9 to 10, 11, 12 by 20,	3 00	" "		2 75	" "
9 to 10, 11, 12 by 24,	3 25	" "		3 00	" "

Where Paris green is used, add from 20 to 40 cents per pair for the same number of coats, the price differing more or less, as the cost of material. In painting new blinds, it is customary to give the first coat of lead color and two

coats of green, and in painting old blinds it is customary to give two coats of green.

SCALE OF PORCH FLOORS, CEILINGS AND AWNINGS.

This scale gives the number of yards in awnings, porches, verandas, etc.; the floors, ceilings and roofs when painted, as they are usually laid with matched flooring.

5	feet	by	5	feet	long	2	yards	7	feet.
5	"	by	10	"	"	5	"	5	"
5	"	by	15	"	"	8	"	3	"
5	"	by	20	"	"	10	"	1	"
5	"	by	25	"	"	13	"	8	"
5	"	by	30	"	"	16	"	6	"
5	"	by	35	"	"	19	"	4	"
5	"	by	40	"	"	20	"	2	"
6	"	by	5	"	"	3	"	3	"
6	"	by	10	"	"	6	"	6	"
6	"	by	15	"	"	10	"	0	"
6	"	by	20	"	"	13	"	3	"
6	"	by	25	"	"	16	"	6	"
6	"	by	30	"	"	20	"	0	"
6	"	by	35	"	"	23	"	3	"
6	"	by	40	"	"	26	"	6	"
7	"	by	10	"	"	7	"	7	"
7	"	by	15	"	"	11	"	6	"
7	"	by	20	"	"	15	"	5	"
7	"	by	25	"	"	19	"	4	"
7	"	by	30	"	"	23	"	3	"
7	"	by	35	"	"	26	"	1	"
7	"	by	40	"	"	31	"	1	"
8	"	by	10	"	"	8	"	8	"
8	"	by	15	"	"	13	"	3	"
8	"	by	20	"	"	17	"	7	"
8	"	by	25	"	"	22	"	2	"

8	feet	by	30	feet	long	.....	26	yards	6	feet.
8	"	by	35	"	"	.....	31	"	1	"
8	"	by	40	"	"	.....	35	"	5	"
9	"	by	10	"	"	.....	10	"	0	"
9	"	by	15	"	"	.....	15	"	0	"
9	"	by	20	"	"	.....	20	"	0	"
9	"	by	25	"	"	.....	25	"	0	"
9	"	by	30	"	"	.....	30	"	0	"
9	"	by	35	"	"	.....	35	"	0	"
9	"	by	40	"	"	.....	40	"	0	"
10	"	by	12	"	"	.....	13	"	3	"
10	"	by	15	"	"	.....	16	"	6	"
10	"	by	20	"	"	.....	22	"	3	"
10	"	by	25	"	"	.....	27	"	7	"
10	"	by	30	"	"	.....	33	"	3	"
10	"	by	35	"	"	....	38	"	8	"
10	"	by	40	"	"	.....	44	"	4	"

SCALE OF CORNICES.

This scale gives the number of yards in cornices of different lengths and widths.

From	1	ft.	6	in.	girth	to	10	ft.	girth	..	1	yd.	6	ft.	0 in.
"	1	"	6	"	"	to	15	"	"		2	"	4	"	72 "
"	1	"	6	"	"	to	20	"	"		3	"	3	"	0 "
"	1	"	6	"	"	to	25	"	"		3	"	5	"	72 "
"	1	"	6	"	"	to	30	"	"		5	"	0	"	0 "
"	1	"	6	"	"	to	35	"	"		5	"	5	"	72 "
"	1	"	6	"	"	to	40	"	"		6	"	6	"	0 "
"	1	"	6	"	"	to	45	"	"		7	"	4	"	72 "
"	1	"	6	"	"	to	50	"	"		8	"	3	"	0 "
"	1	"	6	"	"	to	55	"	"		9	"	1	"	72 "
"	1	"	6	"	"	to	60	"	"		10	"	0	"	0 "
"	2	"	wide		to	10	ft.	long	.....		2	"	2	"	0 "
"	2	"	"		to	15	"	"	.....		3	"	3	"	0 "
"	2	"	"		to	20	"	"	.....		4	"	4	"	0 "
"	2	"	"		to	25	"	"	.....		5	"	5	"	0 "
"	2	"	"		to	30	"	"	.....		6	"	6	"	0 "
"	2	"	"		to	35	"	"	.....		7	"	7	"	0 "

From	2	ft.	wide	to	40	ft.	long	.....	8	yd.	8	ft.	0	in.
"	2	"	"	to	45	"	"	.....	10	"	0	"	0	"
"	2	"	"	to	50	"	"	.....	11	"	1	"	0	"
"	2	"	"	to	55	"	"	.....	12	"	2	"	0	"
"	2	"	"	to	60	"	"	.....	13	"	3	"	0	"
"	2½	"	"	to	10	"	"	.....	2	"	7	"	0	"
"	2½	"	"	to	15	"	"	.....	4	"	1	"	72	"
"	2½	"	"	to	20	"	"	.....	5	"	5	"	0	"
"	2½	"	"	to	25	"	"	.....	6	"	8	"	72	"
"	2½	"	"	to	30	"	"	.....	8	"	3	"	0	"
"	2½	"	"	to	35	"	"	.....	8	"	5	"	72	"
"	2½	"	"	to	40	"	"	.....	11	"	1	"	0	"
"	2½	"	"	to	45	"	"	.....	12	"	4	"	72	"
"	2½	"	"	to	50	"	"	.....	13	"	8	"	0	"
"	2½	"	"	to	55	"	"	.....	15	"	2	"	72	"
"	2½	"	"	to	60	"	"	.....	16	"	6	"	0	"
"	3	"	"	to	10	"	"	.....	3	"	3	"	0	"
"	3	"	"	to	15	"	"	.....	5	"	0	"	0	"
"	3	"	"	to	20	"	"	.....	6	"	6	"	0	"
"	3	"	"	to	25	"	"	.....	8	"	3	"	0	"
"	3	"	"	to	30	"	"	.....	10	"	0	"	0	"
"	3	"	"	to	35	"	"	.....	11	"	6	"	0	"
"	3	"	"	to	40	"	"	.....	13	"	3	"	0	"
"	3	"	"	to	45	"	"	.....	15	"	0	"	0	"
"	3	"	"	to	50	"	"	.....	16	"	6	"	0	"
"	3	"	"	to	55	"	"	.....	18	"	3	"	0	"
"	3	"	"	to	60	"	"	.....	20	"	0	"	0	"
"	3½	"	"	to	10	"	"	.....	3	"	8	"	0	"
"	3½	"	"	to	15	"	"	.....	5	"	7	"	72	"
"	3½	"	"	to	20	"	"	.....	7	"	7	"	0	"
"	3½	"	"	to	25	"	"	.....	9	"	6	"	72	"
"	3½	"	"	to	30	"	"	.....	11	"	6	"	0	"
"	3½	"	"	to	35	"	"	.....	12	"	4	"	72	"
"	3½	"	"	to	40	"	"	.....	15	"	5	"	0	"
"	3½	"	"	to	45	"	"	.....	17	"	4	"	72	"
"	3½	"	"	to	50	"	"	.....	19	"	4	"	0	"
"	3½	"	"	to	55	"	"	.....	21	"	3	"	72	"
"	3½	"	"	to	60	"	"	.....	23	"	3	"	0	"
"	4	"	"	to	10	"	"	.....	4	"	4	"	0	"
"	4	"	"	to	15	"	"	.....	6	"	6	"	0	"
"	4	"	"	to	20	"	"	.....	8	"	8	"	0	"

From	4	ft.	wide	to	25	"	"	.....	11	yd.	1	ft.	0 in.
"	4	"	"	to	30	"	"	.....	13	"	3	"	0 "
"	4	"	"	to	35	"	"	.....	15	"	5	"	0 "
"	4	"	"	to	40	"	"	.....	17	"	7	"	0 "
"	4	"	"	to	45	"	"	.....	20	"	0	"	0 "
"	4	"	"	to	50	"	"	.....	22	"	2	"	0 "
"	4	"	"	to	55	"	"	.....	24	"	4	"	0 "
"	4	"	"	to	60	"	"	.....	26	"	6	"	0 "
"	5	"	"	to	10	"	"	.....	5	"	5	"	0 "
"	5	"	"	to	15	"	"	.....	8	"	3	"	0 "
"	5	"	"	to	20	"	"	.....	11	"	1	"	0 "
"	5	"	"	to	25	"	"	.....	13	"	8	"	0 "
"	5	"	"	to	30	"	"	.....	16	"	6	"	0 "
"	5	"	"	to	35	"	"	.....	19	"	4	"	0 "
"	5	"	"	to	40	"	"	.....	22	"	2	"	0 "
"	5	"	"	to	45	"	"	.....	25	"	0	"	0 "
"	5	"	"	to	50	"	"	.....	27	"	7	"	0 "
"	5	"	"	to	55	"	"	.....	30	"	5	"	0 "
"	5	"	"	to	60	"	"	.....	33	"	3	"	0 "
"	6	"	"	to	10	"	"	.....	6	"	6	"	0 "
"	6	"	"	to	15	"	"	.....	10	"	0	"	0 "
"	6	"	"	to	20	"	"	.....	13	"	3	"	0 "
"	6	"	"	to	25	"	"	.....	16	"	6	"	0 "
"	6	"	"	to	30	"	"	.....	20	"	0	"	0 "
"	6	"	"	to	35	"	"	.....	23	"	3	"	0 "
"	6	"	"	to	40	"	"	.....	26	"	6	"	0 "
"	6	"	"	to	45	"	"	.....	30	"	0	"	0 "
"	6	"	"	to	50	"	"	.....	33	"	3	"	0 "
"	6	"	"	to	55	"	"	.....	36	"	6	"	0 "
"	6	"	"	to	60	"	"	.....	40	"	0	"	0 "

WAINSCOTING.

From the above scale of cornices you can run wainscoting any height and length that is desired, it giving you the number of yards and feet in the various lengths and breadths. Also,

you will find this scale useful in various instances; it is good to give the number of yards in close or blind fencing.

SCALE OF STAIRS.

This scale gives the various sizes of stairway, from 8 to 12 feet story; all that is required is to obtain the measurement, that is, to girt the width of the stairs and stair bases; the following scale will give the number of yards in the work:

Girth.	Rise.	Step.				Yds.	Ft.	In.
3½ ft.	8 in.	10 in.	14 steps	to 8 ft.	story..	8	1	72
3½ "	8 "	10 "	15 "	to 9 "	" ..	8	6	72
3½ "	8 "	10 "	17 "	to 10 "	" ..	9	7	0
3½ "	8 "	10 "	18 "	to 11 "	" ..	10	4	72
3½ "	8 "	10 "	20 "	to 12 "	" ..	11	6	0
4 "	8 "	10 "	14 "	to 8 "	" ..	9	0	0
4 "	8 "	10 "	15 "	to 9 "	" ..	10	0	0
4 "	8 "	10 "	17 "	to 10 "	" ..	11	3	0
4 "	8 "	10 "	18 "	to 11 "	" ..	12	0	0
4 "	8 "	10 "	20 "	to 12 "	" ..	13	3	0
4½ "	8 "	10 "	14 "	to 8 "	" ..	10	4	72
4½ "	8 "	10 "	15 "	to 9 "	" ..	11	2	36
4½ "	8 "	10 "	17 "	to 10 "	" ..	12	0	72
4½ "	8 "	10 "	18 "	to 11 "	" ..	13	4	72
4½ "	8 "	10 "	20 "	to 12 "	" ..	15	0	0
5 "	8 "	10 "	14 "	to 8 "	" ..	11	6	0
5 "	8 "	10 "	15 "	to 9 "	" ..	12	4	72
5 "	8 "	10 "	17 "	to 10 "	" ..	14	1	72
5 "	8 "	10 "	18 "	to 11 "	" ..	15	0	0
5 "	8 "	10 "	20 "	to 12 "	" ..	16	6	0

SCALE OF BALUSTRADE AND HAND-RAIL.

This scale gives the number of yards in hand-rails and balustrades to stairway from 4 to 5 feet wide by 4 to 30 feet long. This scale can be used for measuring work that run of the same heights or breadths:

From	4	feet	wide	to	4	feet	long.....	1	yard	7	feet
"	4	"	"	to	6	"	"	2	"	6	"
"	4	"	"	to	8	"	"	3	"	5	"
"	4	"	"	to	10	"	"	4	"	4	"
"	4	"	"	to	12	"	"	5	"	3	"
"	4	"	"	to	14	"	"	6	"	2	"
"	4	"	"	to	16	"	"	7	"	1	"
"	4	"	"	to	18	"	"	8	"	0	"
"	4	"	"	to	20	"	"	8	"	8	"
"	4	"	"	to	22	"	"	9	"	7	"
"	4	"	"	to	24	"	"	10	"	6	"
"	4	"	"	to	26	"	"	11	"	5	"
"	4	"	"	to	28	"	"	12	"	4	"
"	4	"	"	to	30	"	"	13	"	3	"
"	4½	"	"	to	4	"	"	2	"	0	"
"	4½	"	"	to	6	"	"	3	"	0	"
"	4½	"	"	to	8	"	"	4	"	0	"
"	4½	"	"	to	10	"	"	5	"	0	"
"	4½	"	"	to	12	"	"	6	"	0	"
"	4½	"	"	to	14	"	"	7	"	0	"
"	4½	"	"	to	16	"	"	8	"	0	"
"	4½	"	"	to	18	"	"	9	"	0	"
"	4½	"	"	to	20	"	"	10	"	0	"
"	4½	"	"	to	22	"	"	11	"	0	"
"	4½	"	"	to	24	"	"	12	"	0	"
"	4½	"	"	to	26	"	"	13	"	0	"
"	4½	"	"	to	28	"	"	14	"	0	"
"	4½	"	"	to	30	"	"	15	"	0	"
"	5	"	"	to	6	"	"	3	"	3	"

From	5	feet	wide	to	8	feet	long	.....	4	yards	4 feet.
"	5	"	"	to	10	"	"	.....	5	"	5 "
"	5	"	"	to	12	"	"	.....	6	"	6 "
"	5	"	"	to	14	"	"	.....	7	"	7 "
"	5	"	"	to	16	"	"	.....	8	"	8 "
"	5	"	"	to	18	"	"	.....	10	"	0 "
"	5	"	"	to	20	"	"	.....	11	"	1 "
"	5	"	"	to	22	"	"	.....	12	"	2 "
"	5	"	"	to	24	"	"	.....	13	"	3 "
"	5	"	"	to	26	"	"	.....	14	"	4 "
"	5	"	"	to	28	"	"	.....	15	"	5 "
"	5	"	"	to	30	"	"	.....	16	"	6 "

The beauty of these scales is, that every part of the housework can be taken in a few minutes, and the figures in the estimate will be correct; as is often the case, you are required to give an answer, and by this it can be done with safety. It would be well for new beginners to study and understand these scales thoroughly; by following them, both time and money are saved.

CLEANLINESS IN PAINTING

The painter can not be too careful in handling his work with cleanliness; for his aim is to beautify his work, and unless it is kept perfectly clean, he will succeed poorly; therefore, I would advise you to be careful in all branches of the trade.

Let every surface to which color is to be applied be well dusted and cleaned off before applying the paint; and often it is necessary, on fine jobs, or sign work, to wash off before putting on the following coats; and in sanding off your work, if there is sand sticking in particles over the surface, this should be well dusted off with a good duster.

In painting wash-boards or bases, dust carefully along on the floor, so as to remove the grit that collects under the wash-board, for in cutting in the bases, the brush will catch up all the grit, make a rough job, and spoil the

beauty of the work. In painting over old work, be careful to brush down the cobwebs, for they hold dust, and color the white or other delicate colors, and spoil the whole effect.

In doing nice work, some painters change their brushes from one color to another, and but imperfectly, washing them out. In the first place, it is hard to wash a colored brush from a colored shade, to be worked in white. I have seen good work spoiled in that way. The best way is to keep certain brushes for white, and nothing but white. Some have a careless way of painting dark colors, getting it on their hands, and then handling white or light work, and leaving finger marks on it, which show through the last coats. The best way is to wash the hands before handling white work; you can not be too careful in this matter. Some painters wipe their hands on their overalls, which is a very slovenly practice. It is certainly necessary to keep yourself perfectly clean; your over-clothes should be changed often, and washed, if you have any regard for health. I know you can not avoid getting paint on your clothes, but you can wash them often enough, to keep them from standing alone. As the beauty of your work is in keeping clean and in being careful, and

your health depends on cleanliness, I trust you will observe these few remarks, and be benefited.

In this work all technical phrases have been entirely avoided, in order to make it plain and perfectly understood by young and old, it leaving no difficulty to contend with; remember that courage is the way through difficulty.

REMARKS TO BEGINNERS.

In the first place, learn to be neat in all your work, and keep your hands as free from paint as possible. It will be well to clean your hands every evening perfectly with a brush, so there is no paint left on them; paint acts on the nerves of the wrist, and produces a weakness of that part. Apprentices often get sick at the stomach, accompanied with a slight headache, and sometimes a fainting sensation; this arises from the fumes of lead or green, and often when boiling oil, etc., by inhaling these. When these feelings arise, relief can often be found by going out in the fresh air, or by taking a little fresh water they soon pass away. After working at the business a few months, you will not be troubled with these symptoms. You should have your meals as

regularly as possible, and not work with an empty stomach, because the paint has more effect on you then.

I should advise you not to use strong drinks. The painter should be strictly temperate. Many jour. painters are in the habit of drinking more or less, but it is very injurious to them, for it will be found, by habitual drinking, that the liquor, acting with the poisonous qualities of the paint, will soon bring the painter to an early and premature grave; but if the painter is temperate in his habits with regard to liquor, and is careful to observe perfect cleanliness, he may expect to follow the trade with comparative safety. To illustrate the effect of liquor on the drinker and the abstainer, it is said by a medical man, that if a drinker is attacked by painter's colic, strong drink only makes him worse, and if persisted in will soon carry him to his grave; but, with the temperate man in the same disease, liquor has a most favorable effect, and in most cases will not fail to entirely cure. Therefore my advice is, to abstain from all alcoholic drinks, for instead of neutralizing the effect of the paint, it only makes a bad matter worse, and hastens its unfortunate victim to an untimely end.

PAINTERS' COLIC.

This disease is the most common, as well as the most dangerous, that the painter is subject to. It arises from inhaling the fumes of the different mixtures of leads and greens, and is often very severe in its attacks. It is a violent species of colic, but it may arise from other causes besides paint; it is worse when caused by lead, and is very difficult to cure. The first symptoms are a pain in the pit of the stomach, gradually increasing and passing to the bowels. At the first symptoms, a person should take a large dose of castor oil, or, which is better, one-half castor and one-half linseed oil. If this should not give relief, take more of the oil, and a dose of calomel in a pill, and put warm cloths on the pit of the stomach. The patient should be kept as quiet as possible; he should take no spirituous liquors, nor any kind of solid food, but should confine himself to broth diet. It is positively necessary to keep out of the sun while you are under the influence of this disease. And now, my friends, it is unnecessary to say more on this subject, for you can all see it is necessary to be very careful in order to preserve health in this most unhealthy of occupations; and let those that drink be-

ware, it will certainly kill or cure, and it is apt to kill.

Some physicians advise chewing tobacco, and recommend it very highly as a preventive to the effects of paint; it may be good, if not used to excess, which is very bad; for my part I can not say, as I never use it. It is also a good plan to use a large portion of fat meats, and other oily substances, by which practice the paint is said not to affect persons nearly so much. A very bad practice prevails among painters in removing paints and varnishes from the hands which are very hard to get off, they use turpentine, which, penetrating the skin, causes a weakness of the wrist, and often entirely ruins the hands. Varnish, or any other substance, is very easily removed, by using raw linseed oil; it will remove any substance you get on your hands in the painting business, at the same time it softens the skin, and is good to relieve heat or fever in the hands, while, on the contrary, turpentine dries the skin and causes heat and fever.

TO THE APPRENTICE OR YOUNG PAINTER.

I will give you some instruction, as landmarks that you may see, and seeing, be benefited; that is, if you ever expect to become a thorough and practical painter, and succeed in the business, it depends on yourself — on your own perseverance and energy — for you will never be proficient in your business unless you put your own hand to the wheel. In the first place, do not depend on your employer to show you every thing in the business, but observe every thing, and impress it on your mind, and when it comes to you to do, you will have some knowledge of what you want. In this business the apprentice should be no drone in the hive, but should go at it with a will, and by close observation he will succeed, and by close study become a No. 1 workman, and a splendid sign writer or a good grainer. You may have a friend who will instruct you, but he can not teach you any thing unless you are determined to learn. Therefore, I claim that it depends on yourself; you must take your pencil and strive to learn; and to become an accomplished sign writer you should be continually drawing, and laying off letters and

figures, and in fact you should learn to draw thoroughly, for in sign and banner painting there is considerable drawing of figures and caricatures, also many articles on signs of different trades. If you have learned to draw well, lettering will come to you very readily, for drawing is the soul of painting, and you can accomplish nothing unless you can draw; in ornamenting it is indispensable. A man should be capable of ornamenting in all sizes and shapes; for instance, in sign painting you are sometimes required to paint a man's name on a fifteen feet board with five letters, and at at another time with twenty letters on the same length of board; it can be done, and made to read well on both signs, and with a good sign painter it is easily done, for it becomes a second nature to him.

A little of my experience may perhaps be of some service to you. I have worked at the trade some twenty-three years, and my success has been accomplished by close observation and perseverance, combined with a continual drawing of letters, ornaments, figures, etc., and every thing pertaining to the trade. The first lesson I received was to depend upon myself. It is impossible for the boss to let inexperienced hands work on signs, for his reputa-

tion is at stake, if he has much competition in the business; and again, the man that he works for expects to have a good job done. Again, if I had an apprentice, and should take time to lay off the work for him to letter a common sign, I should have to be very particular in laying off the work, and while doing that I could paint the sign, for I can letter a common sign as soon as I can lay it off for another; for every point should be correct, or the apprentice would make but a poor job. I will tell you how I lettered my first sign. I had been drawing on letters and ornaments until I had full confidence that I could paint a sign and shade it; I had very good command of the pencil by striping, and was sure I could make a good, passable letter. My boss had a large sign in the shop, and he wanted it lettered on Saturday. He was doing his sign work himself, but on this occasion he was called away on important business from town, and could not do it, and it was promised. I requested him to let me letter it, and he would not. Well, he went; and I resolved to do the lettering, if I got my discharge, and I went at it that day, and the next morning it was finished. On Monday morning he came to the shop, and said, "Who did that?" I told him

that I did; he eyed it a moment, and said it was well I had not spoiled it. All the reproof I received was that the "W" was spread a little too much. After that I had plenty of sign work to do, and it saved me a great deal of hard work. I have had from ten to twenty jours. in my shop at a time, and some of them had painted for years and could not make a letter, and not one that could letter a sign; I can lay it to nothing else but being careless and dilatory; well, if a pound brush will suit them, all right. I have found it more or less so in graining. And another item that is worth mentioning is this: when I was an apprentice, I kept a receipt-book, that I wrote everything in pertaining to painting. In this way I got many ideas, which probably I should not otherwise have remembered; and as I progressed, I often had occasion to refer to it; and, following that up, has induced me to put this work before the public. In learning the painting business there is no small amount of study to go through with, and it requires perseverance to become successful; for by perseverance and an indomitable will I have been successful, and stand among the best in my business.

D. S. McDannell.

CONCLUSION.

I would say, in conclusion, that it must not be imagined that the profession of a painter is that of an idler; on the contrary, it is one of the most active of occupations, for one is constantly engaged, if not with the work itself, at least with its materials; then, again, there are so many things to be calculated, foreseen, and prepared, independently of the considerable time which must be taken for the art itself, if one would make progress. How, indeed, should it be otherwise with the profession of a painter, since it is so in every part of life, mentally and morally. Our whole existence is a struggle against obstacles; happy he, not who has the fewest to encounter, but those who have most spirit and perseverance to surmount them, or the most resignation to submit

to disappointment when they prove insuperable. But courage! the way through difficulty, arduous and perplexing more than you yet can conceive, has been trodden without fear by multitudes, and with good success by not a few. There is no reason why the same obstacles may not be again overcome; all that is needed is perseverance, for be assured that without it there is no genius — no, not in any thing. In our business there are obstacles that dishearten, but the genius must never give up, but push ahead over and conquering every difficulty. In this volume you will find needful instruction. If you aim higher and loftier in the art, strike with a steady fire; you will not then be chilled at a first, nor a second, nor yet a third, failure. Do what you will, let perseverance and a determined will overcome all, and be not discouraged if the wise perception of colors is the gift of nature, for how many have overcome natural deficiencies and become proficient in their business; and you will find the "Practical Painter," with its rules, charts, scales and instruction, a real assistance in your profession, that will give you a lift on the ladder of fame.